N.A.A. BULLETIN

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- √ *Fast and Reliable Data*
- √ *Aggressive Analysis*
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Depreciation Problems — Perspective and Practice

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THE PROBLEM DISCUSSED HERE is the propriety of substituting economic for accounting or book value, assuming that the latter concept is based upon original or historical cost. The question is whether original cost shall continue to serve as a basis for the determination of profits in our business economy or whether book costs shall be restated in current dollar values for the purpose of calculating the earnings of the enterprise.

The notion of accounting value based on original cost rests on the premise of a relatively stable monetary system, especially in the evaluation of long-lived, fixed property. Rapid and wide changes in the general price level with their concommitant variations in the purchasing power of the dollar have serious effects not only on the historical cost concept, but also on other fundamental economic and legal conventions, such as contracts, inheritance, taxation, and property rights.

Cost Basis Stands Up But Investigation of Others Is Warranted

A stable monetary system is an economic abstraction. One speaks of a stable monetary system only when our economy experiences a long period of relatively stable price relationships and, as long as relative price stability exists, there is no need to substitute a new evaluation program for an old established one. Although our present price structure appears to be relatively unstable, inflation at the moment is not of sufficient magnitude to warrant the rejection of original cost as an objective basis for conventional accounting.

This apparent contradictory position needs a few qualifications. It does not preclude continued experiment and thought in trying to discover new evaluation principles and conventions. It does not deter the recommendation and study of new techniques designed to arrive at a fairer and more reasonable basis for profit determination. New methods of allowing for depreciation where plant additions are fairly uniform over the years tend to offset the differences between deprecia-

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tion computed on current value and depreciation computed on original cost. The granting of higher rates of return (in the case of utilities), the substitution of a basis for measuring depreciation expense under which increased amounts are allowed for income tax purposes in the earlier years of the plant's life, and the use of appraisals when original cost values lose their significance—all of these, to name a few, should be given further trial and consideration before renouncing accounting values based on original cost. Further analysis can be given to the evaluation of fixed assets on a plant-wide basis, whether the plant as a whole is a growing, stable, or regressive unit. Obviously, if a sustained period of rapid and drastic price inflation takes place, the present original cost doctrine will have to be abandoned because accounting results will have lost all meaning, but it must be remembered that other institutional concepts in the economy also will become obsolete.

On the other hand, there is an uncertainty inherent in the re-statement of book costs in terms of current values. There is the possibility that it might become necessary to discard historical cost at some future date because of decreased earnings attributable to overstated depreciation charges as a result of prolonged declines in the price structure. As an extreme example, the U. S. Industrial Alcohol Company in 1933 (25 years ago), according to its annual report, reduced its fixed asset valuation to $1, which, on December 31 of the previous year, had been carried at a net valuation of $19,301,044. This write-down had the effect of eliminating all depreciation charges and thus of increasing apparent (economic) profits. Although the report to the stockholders suggested that this understatement of asset values was a conservative course, the action of the board did distort the plant valuation figure to such an extent that the nominal value seemed extremely unreasonable.

There still persists in this country two economic doctrines that receive wide respect and consideration: that of the economists who believe in the theory of the business cycle and who have an implicit feeling that the future will have its temporary price peaks and valleys and the doctrine of economists who are of the opinion that our economy is headed for a long period of relatively mild inflation without any significant decrease in our present price structure. The latter group argue that, because of the government's fiscal policy which is committed to the return of full employment, farm and other subsidies and increased national defense, together with rigidity of the price structure as a result of built-in wage and fringe benefit expenses, our economy will experience a future of general price increases.

What Application of Economic Value Involves

The New York Telephone Company sought permission from the New York State Public Service Commission in a petition filed November 30, 1953, to increase certain rates and charges for the purpose of supplementing its revenues by $68,850,000.[1] The case is unusual for several reasons. The Company did not ask the commission for permission to change the structure of its accounts neither did it ask for a change in the tax laws. The company endeavored to prove its claim for a rate increase by basing its arguments purely on theoretical economic grounds. The reasoning in the case can be resolved under three main tenets:

1. Fixed asset values should be restated in current dollar values in order that the earnings of a company's stock, either old or new, will be more nearly consistent with the economic value of the property than with its historical cost.
2. The earnings of a company should be sufficient to attract new capital on a basis that is fair to its present and past investors alike, including compensation for decrease in the value of the monetary unit, such as the unaccounted for costs of economic depreciation.
3. The rate of return should be commensurate with returns on investments in other enterprises having corresponding risks, especially in the case of regulated utilities as compared with unregulated manufacturing concerns.

These premises are based upon economic doctrine rather than present accounting conventions. Economic value is measured in terms of economic profits rather than accounting book profits; economic depreciation is an attendant factor of economic value in so far as the evaluation of fixed assets is concerned. The

[1] Case No. 16548, New York State Public Service Commission, In the matter of the Proceeding on Motion of the Commission as to certain proposed increases in the rates and charges of the New York Telephone Company. (Testimony references were made in January, February, 1954). After the hearing the Commission contended that the proposed increases were not justified and in August 1954, directed that the Company cancel its tariff filing. Thereafter, the New York Telephone Company brought the matter before the Courts of New York State, and eventually the Court of Appeals in February 1956, remanded the matter to the Public Service Commission for a new hearing, on the grounds that the Commission had erred in not receiving evidence pertaining to reproduction cost. Later on, in November 1956, the Company filed a petition requesting an increase of $55,321,000 in rates, and the Commission reopened the above case in accordance with the direction of the Court of Appeals. (A discussion of the reopening of *Case No. 16548* follows later in the paper.) Meanwhile, the Commission granted the Company two interim increases: one for $8,052,000 in December 1955, and another for $15,745,000 in July 1956, or a total of $23,797,000, mainly to provide for increased operating expenses as a result of the establishment of new wage schedules.

first two tenets pertain to economic value and economic depreciation developed independently of the third facet which relates to the corresponding risk concept. Let us examine these premises.

Basically, accounting conventions are established to refine the method of record keeping—an art which serves as a guide for making management decisions and for reporting stewardship. Conventional accounting comprises a set of book figures from which reasonable conclusions can be drawn. Accounting data may be interpreted variously by different groups of individuals; in fact, one purpose of the accounting records is to furnish a benchmark or starting point from which these people can measure the productive (or profitable) performance of an enterprise, a measurement in absolute amounts that can be judged in terms of reasonableness from the point of view of diverse social interests. It is believed that accountants generally are not opposed to the various meanings as applied to cost—one of which is the economic interpretation—in so far as economic value does not become a part of the bookkeeping record.

Since 1940 it has been argued that the earnings reported by corporations and other business units represent only book or accounting profit as distinguished from the true economic profit of the enterprise. Economic profit is defined "as the amount remaining from total sales and revenues after all costs approximately assignable to such sales or revenues are met, including the equivalent in current dollars of the physical assets—inventories and plant facilities—that are used up in production."[2] Consequently, in order to determine economic profit, it is necessary to state revenues and costs in dollars of like purchasing power. Since revenues are measured in current dollars, costs pertaining to inventories and plant assets must be restated in terms of revenue or current dollars. Thus, it has been alleged by many economists that, during the post-war period, the reported earnings of companies have exceeded their economic profits because of conventional accounting methods, particularly in the case of long-lived assets which are carried on the books at original cost and depreciated accordingly.

Purpose of Depreciation

The purpose of depreciation from an accounting point of view is to allocate original cost, not economic value allocation. One writer has recently stated that depreciation accounting, "is merely to distribute the cost as a charge to opera-

[2] *Ibid.*, testimony of Mr. George Terborgh, p. 318.

tions over the useful life of the asset in 'a systematic and rational manner.' "[3] Depreciation accounting based on original cost does not serve to maintain the plant property at a high level of efficiency, to provide funds for an expanding plant, to protect the credit of the company and the integrity of the investment, or to maintain unimpaired the present value of the property. Historical cost measures the dollar value of the investment at the time it was first devoted to the service for which it was intended. From that point on, the investment in fixed assets, together with all other investments in the business in terms of standard money, are subject to all the risks of the universe, including changes in the value of money. No one can deny that inflation will result in losses in the purchasing power of money sunk in capital equipment, whether provided by creditor or stockholder. The only way these losses can be recouped is in the market place by increasing prices to cover the economic costs of the service. Replacements which have to be made in terms of inflated prices are effected from additional capital funds obtained from owners and creditors alike. Depreciation, from the accountant's standpoint, is not an insurance cost for the risk of losses resulting from the decreased purchasing power of the dollar: neither is it a means of measuring the gains resulting from the increased value of money. Depreciation was never meant as an accounting device to provide additional new capital (in terms of current dollars) for the enterprise but has been merely an accounting technique formulated to spread the original cost of the investment in fixed capital over its useful life.

At this point, it should be mentioned that, while professional accountants generally have retained the position that the purpose of depreciation is to allocate original cost, there are still other accountants who believe that the purpose of depreciation is to record the value of the property consumed in each accounting period. Thus, the problem of cost versus value in accounting is a current one and must be reviewed consistently in order to keep all considerations pertaining to it in their true perspective.

Measurement of Economic Value

A second aim for substituting economic value for original cost is to enable a company to attract capital for current needs and for the expansion of fixed prop-

[3] *The Journal of Accountancy*, July 1958, "Accounting and Auditing Problems," edited by Mr. Carman G. Blough; the article also states in the same paragraph preceding the above quotation: "To an accountant the cost of a depreciable asset is merely a prepaid expense or a deferred charge to future operations, the same principle as the cost of an insurance policy, the cost of research and development properly chargeable to future periods, or the cost of a leasehold," p. 79.

erty on terms which are fair to the present owners of the business. In order to maintain the integrity of the investment in long-lived assets, they must be measured in terms of the purchasing power of the dollar. The problem here is how to measure the preservation of capital in terms of purchasing power when one period in time must be compared with another, say 1940 and 1958. This problem contains two variables: physical attributes attached to the asset and the capital investment to procure the asset in terms of money.

Suppose an investor in 1940 could command a new Cadillac automobile for $2,500. In 1958 his money, which he recovered from his 1940 investment (assuming depreciation on an original cost basis), could command an automobile better in quality and performance than the 1940 Cadillac. Again, by adding another $2,500 to his investment, he could purchase a new 1958 Cadillac for $5,000 which, in the layman's opinion, would have better than twice the performance value of the 1940 Cadillac. There has been a technological improvement in the construction of automobiles but, even so, those who argue for the adoption of economic depreciation believe that the gain in technology has not been able to offset the loss suffered through inflation. There might come a time when this appears true, but one is still brought back to the main question to solve: how is the relative stability of the purchasing power of money measured?

There are three methods which have been advocated to measure economic profits or the earnings on a committed investment, namely: (1) the use of index numbers, (2) the maintenance of purchasing power, and (3) the concept of service capacity. Up to the present time, the use of index numbers seems to be the only practical solution for measuring the changing value in the purchasing power of money.

The purchasing power doctrine is, "that earnings to which an investor is entitled should be based on the units of purchasing power which he has contributed."[4] The purchasing power approach would apply to the bondholder's contribution as well as to the investment of the stockholder. Purchasing power cannot be measured except by use of an index number of some kind. In this case, one type of general price index would be used to measure the change in the value of the dollar, and another type—presumably a capital construction index—would be used to measure the purchasing power of the property contributed.

The service capacity concept, briefly stated, means that "earnings (of old investors) must be sufficient to provide, for each unit of service capacity, the

[4] *Case No. 16548* New York State Public Service Commission, etc., testimony of Mr. O. T. MacMillan, p. 785.

same return which prospective investors demand on the investment required to provide an equivalent service capacity unit."[5] Otherwise, new investors acquire title to a portion of total earnings greater than their share of service capacity added in case of cheaper dollar investments. There is some merit in the service capacity approach, as its measurement is based on a unit of output rather than the medium of exchange. However, this concept has not been developed to any great extent in the United States because inflation has not been of such a severe nature as to seem to require it.

Economic Depreciation

In periods of rising prices, it is obvious that book depreciation does not measure the true economic cost in furnishing the product or service of the company; thus, the argument runs, economic depreciation should be calculated in terms of the value of property based on current dollars in order to measure the economic cost of the plant's output. This reasoning, however, also has its weakness. Let us examine a case in point.

An older pre-war (1940) electric utility plant has a book cost of $120 per kilowatt, with a recent operation and maintenance cost (1954) of generating electric energy at approximately 7 mills per kilowatt-hour. A newer, more up-to-date plant was constructed (1954) at a cost of $200 per kilowatt, with a 3½ mills operation and maintenance cost per kilowatt-hour output. (The costs per kilowatt-hour above do not contain any elements of costs for depreciation, taxes and rate of return.) However, if the costs for operation and maintenance, depreciation and taxes for generating a kilowatt-hour of electric energy at the older plant (at original cost) are combined, there is a likelihood that the total cost will be greater than the combined elements of costs of the newer plant. Since the older plant was constructed at prices which were lower than those at present, book depreciation will not measure the economic cost of furnishing electric service in terms of 1954 dollars; therefore, should economic depreciation be recognized as an operating expense, the total cost of generating a kilowatt-hour of service at the older plant will be further increased, and the disparity between the combined elements of costs of the older and newer plants would become wholly unrealistic.

It is contended that the book recognition of economic depreciation will tend to aggravate the perplexity that already exists in shifting back and forth between

[5] *Ibid.*, 788.

economic and accounting concepts. It does not seem quite fair to burden the present consumers with economic depreciation allegedly contained in an older utility unit without in some measure giving them the benefit of the lower costs resulting from the operating of a more modern and efficient plant.

There is also the problem of measuring the relative efficiency between the older and newer units of property because of certain physical characteristics and accounting limitations.

Commensurate Returns

The idea of commensurate returns was brought out by the U. S. Supreme Court decision in the *Federal Power Commission v. Hope Natural Gas Company* case[6]. Under this concept, the earnings of a public utility should be commensurate with returns in other enterprises having corresponding risks. The essence of commensurability implies the measurement of values emanating from common units, a premise which would be difficult to apply in comparing one industry with another, and even more difficult as between a regulated utility and an unregulated manufacturing concern. The *Hope* case, however, did not hold that original or any other kind of cost be used to measure commensurate returns but indicated that costs should contain service on the debt and dividends on the stock in sufficient amount to maintain the credit and to attract capital.

Shift of Position in the Telephone Case

In the reopening of its case[7] for additional revenue, the New York Telephone Company in its petition requested a tariff increase of $55,321,000 and urged that the fair value of the company's property be based on reproduction cost, for rate-making purposes. The company abandoned the argument that its

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[6] 320 U. S. 591 (1944).

[7] Case No. 16548, New York State Public Service Commission, In the Matter of the Proceeding on Motion of the Commission as to certain proposed increases in the rates and charges of the New York Telephone Company, opinion of Commissioner Spencer B. Eddy, and approved by the Commission, October 10, 1957. The Commission granted the company an increase in tariffs of $33,000,000 annually, based on a 6½% return on a rate base consisting of its net property account on original cost plus working capital, rather than the previous maximum figure of 6%. Thus, in November 1953, the New York Telephone Company set out to obtain an increase in tariffs of $68,850,000. Almost four years later, the company had received rate increases in the amount of $56,797,000; but failed in its testimony to establish a rate base evaluated either in terms of the purchasing power of money or on reproduction cost.

fixed property be revalued in terms of the decreased purchasing power of the dollar. This change in reasoning was probably the result of the decision of the Court of Appeals in remanding the case back to the commission for rehearing on the grounds that the commission failed to recognize the company's evidence on reproduction cost. In its final disposition of the case, the commission based its decision for granting tariff increases on original cost, after giving due consideration to the concept of reproduction cost.

In 1929 when the courts upheld the doctrine that rate bases might include properties evaluated on a reproduction cost basis in the *O'Fallon Railway* case,[8] the advocates supporting this principle may be said to have reached their zenith in this century. Since that time most regulatory commissions have turned to the original cost doctrine and, during the period following the Second World War, many attempts to break the original cost rule have failed. Exceptions can be found where Commissions are authorized by the courts to give consideration to the "present as compared with the original cost of construction" as laid down in *Smyth v. Ames* (169 U. S. 466) in 1898 when the court outlined the criteria for a fair return on the fair value of property. Public Service Commissions throughout the United States have been increasingly accepting the concept of fair value because of the inflationary factors in our economy, with the result that at present there are a number of so-called "fair value" states in the Union.

Cost of reproduction has two connotations. On one hand it refers to the cost necessary to replace the identical property new, at the present time, which means the repricing of the fixed assets as they exist today in terms of current dollars. On the other hand, it implies the cost necessary to construct a plant that will perform the same service, regardless of whether the structural form and location of the asset remain the same. Sometimes this latter concept is spoken of as cost of replacement to distinguish it from cost of reproduction. Whichever meaning is adopted, its application involves the choosing of a particular point of time to make the evaluation, such as July 1, 1958. The weakness here is that the approach ignores price trends and average costs taken over a period of years. Moreover, the concept of reproduction cost seems to be similar to the issue calling for the revaluation of fixed assets on the basis of the relative purchasing power of the dollar, since the re-pricing of the property is made in current dollars. If the period in which the property is revalued is one in which prices are higher than when the plant was first devoted to its intended purpose (1958 as compared with 1940), obviously the replacement of the property at

[8] St. Louis & O'Fallon Railway v. U. S. (279 U. S. 461).

the present time will be more in terms of dollars because of increased material and labor costs.

In order to determine the net cost of plant, it is necessary to consider accrued depreciation on either original or reproduction cost. There is little accounting difficulty in estimating the amount of allowance for depreciation to be deducted from an original cost base. Although the arithmetic computation of accrued depreciation on reproduction cost does not become more involved than the computation of the allowance on an original cost basis, complexities are encountered in the determination of the amount of observed accrued depreciation, at the time of evaluation.

Cost the Best Present Reliance—Not the Last Word

Value has many meanings. The problem discussed above concerns the pecuniary amount to be attached to value for accounting and bookkeeping purposes. Original cost is one conventional method that can be used as a basis for value. If assets are acquired by gift or original cost values need adjusting for insurance purposes, current appraisals are in order. Assessment values also are required for tax purposes. Then there are those who hold that economic values should be established in the accounting records when the latter do not conform to the realities of life—revaluation of dollar amounts upward in case of an inflationary era and revaluation downward in periods of depression.

Land and a few intangible assets do not have the same problem as assets subject to depreciation, amortization, or depletion. The problem is made more complex in the latter instance, since one has to recognize the decrease in the monetary value of the asset because of its use, obsolescence, or waste. For example, is the purpose of depreciation to allocate cost or to provide for the replacement of the asset in current dollar values? The contention in this paper is that some benchmark in the accounting records has to be maintained and, for the present at least, original cost seems to be the best criterion.

This conclusion does not infer that original cost as an accounting doctrine should be the final word in the evaluation of plant assets; neither does the conclusion ascribe to the position that original cost be made dogmatic by formula. Economic value, whether determined by indexing original cost figures, capitalizing income, or measuring the relative purchasing power of money, has its merits as a management guide for financial and regulatory decisions. However, to accept this concept as an accounting convention makes for more confusion in the bookkeeping records than its adoption would mitigate.

The Depreciation Dilemma Has More Than Two Horns

by FRED J. SENGSTACKE

DEPRECIATION IS A SUBJECT that accountants have paid relatively little attention to until recent years. The depreciation methods to be used have been selected, schedules have been set up and journal entries prepared, all in a somewhat abstract manner. The numbers on paper have been more important than the facts concerning pieces of machinery or equipment. The attitude seems to have been: depreciation cannot really be determined accurately anyway, so why bother? This attitude has now undergone a fundamental revision and many thoughtful people have started to question the existing techniques of accounting for determining depreciation.

Depreciation has become an increasingly significant item in manufacturing costs, a trend which has been particularly in evidence since World War II. Among the reasons for this increased importance of depreciation are the continuation of the long-term trend to greater mechanization and, in many industries, an acceleration of that trend. The development of technological improvements has, in turn, speeded up the rate of obsolescence, with the result that many items of equipment which can still perform their intended function can no longer be used economically. Obsolescence also affects entire processes and products. The obsolescence of both product and equipment has a combined effect when new, highly-automated, special-purpose machines are used for the manufacture of a specific item.

In such situations, when the product's economic life is through, the entire unit may be obsolete, whereas only a few and less expensive pieces of equipment would have become obsolete if automation had not been applied. There is no reason to believe that these trends will reverse themselves. Instead, they are becoming more and more a part of our everyday lives and we tend to accept them as commonplace. Certainly manufacturing facilities in the year 2000 will require more investment in machinery and equipment per dollar of sales than is the case today.

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These factors alone would raise significant problems in many industries concerning the handling of depreciation as an expense, but the over-all problem becomes even more significant when we consider the effects of inflation, which has been continually with us for at least the last fifteen years. Inflation is the heart of the present depreciation dilemma, for present accounting practice depreciates the dollars used to *buy* the asset over its life, regardless of what the same number of dollars would buy today. This has led many companies and executives to question the acceptability of depreciation methods for determining profit, the amount of income taxes owed, product costs, or in the comparison of alternatives in selecting and replacing depreciable assets, and to ask whether depreciation charges are fulfilling their function of providing funds for replacement of equipment.

The Problem of Asset Lives and Incidence of Depreciation

In one sense, the depreciation dilemma has always been with us. We have always been faced with the problem of determining how much of the total cost of a long-lived asset is applicable to each accounting period. This is not an easy question to answer, even without the complications of inflation. The first problem that arises is determination of the useful life of the asset. Most industries have settled for the use of management judgment or the periods of life suggested by the Internal Revenue Service. Utility companies are one outstanding exception to this. Many studies have been made concerning the useful lives of items such as telephone poles, etc. Within most industries, however, the problem is complicated by the fact that the specific kind of asset is not replaced, and history or detailed analysis of history would only provide a broad indication of service lives.

Obsolescence complicates the problem further. It is certainly difficult to judge how long it will take before someone will come up with the bright idea that will make one's equipment obsolete. The problem of a small company in this report is perhaps more difficult to resolve satisfactorily than that of a large one. Within a large company, reliable history will often be available, and errors in judgment on one asset or a group of assets will be offset to some degree by opposite errors on others.

As we have had to make assumptions as to the length of life of an asset, we have also made assumptions concerning the way in which the asset depreciates. The choices of methods have generally been limited to the straight-line method, which assumes that depreciation takes place at a uniform annual rate; the output method, which assumes that depreciation is proportionate to the use of the

machine or facility; and the accelerated methods, declining balance and sum-of-the-years' digits, which assume that the greatest amount of depreciation takes place in the early years of an asset's life. Which of these methods actually represents the facts? It would seem obvious that, if depreciation is a real cost, each of these methods cannot be true for the same asset. Most people would agree, I am sure, that an automobile tends to depreciate, at least in value, in a manner similar to declining balance. But if one has sold a 20 year old house lately and is faced with the possibility of paying a tax on the gain, he may argue that the house did not depreciate at all.

Accounting practices in depreciation have always been strongly influenced by the income tax laws, and the broad provisions of the Internal Revenue Code of 1954 have encouraged the use of accelerated depreciation methods. The general viewpoint seems to be that depreciation deductions should be taken taxwise as soon as possible. This approach has the advantage of generating cash earlier, and helping to avoid the problem of years when there are insufficient profits to absorb deductions and of possible changes in tax law or administration. It is also true that, if a company continues to grow and replaces depreciable assets at a fairly steady rate, it will not be faced with the problem created by accelerated depreciation, i.e., of low depreciation amounts in the later years of an asset's life. If the company expands and increases the gross amount of its depreciable assets, additional tax savings occur. Only in the event of some liquidation of depreciable assets will the tax savings be lost.

Since it is true that, if the liquidation or shrinkage of the business is excluded and tax rates remain substantially the same, declining-charge depreciation methods yield a tax advantage, only a few companies in question have recognized a deferred liability in their balance sheets for tax savings resulting from these depreciation methods. (Accounting Research Bulletin No. 44 of A.I.C.P.A., revised in July 1958, recommends that accounting recognition be given to deferred income taxes if the amounts are material, in situations in which declining-charge methods are adopted for income-tax purposes but other methods are used for financial accounting purposes.) It has even been argued that accelerated depreciation methods and their consequent effect on taxes represent a solution to the problem of retaining sufficient funds in the business in order to maintain and replace facilities.

Viewpoints on the Function of Depreciation

Before considering this question, however, we should identify the several points of view that apply to the problem of keeping capital intact. The tradi-

tional accounting viewpoint looks upon the historical cost of depreciable assets as a deferred charge to be deducted from revenues during the useful life of the asset. This type of approach recovers to the company the dollars originally expended at the time the asset was acquired. In fact, too many companies still restrict their capital budgets to the amount recovered from depreciation charges. This viewpoint is based, of course, on the fundamental accounting premise of the consistent value of the dollar as a unit of measurement.

A much more extreme point of view concerning adequacy of depreciation charges holds that depreciation amounts should be sufficient to provide for keeping a company's plant and equipment abreast of technological progress and for maintaining its competitive manufacturing position. This view goes far beyond simple maintenance of capital invested. It is based on the fact that technological progress in manufacturing methods and in the development of new products has required increasingly expensive equipment. Its advocates claim that depreciation charges should provide the funds necessary for this more expensive equipment.

It would appear, in my opinion, that this philosophy would result in having depreciation charges cover what is actually new investment. If, for example, in a Utopian economy a stable dollar existed and there was no actual wear and tear on equipment and a market for used equipment existed, this policy would still require depreciation charges in order to make technological improvements and to invest in the necessary equipment, when it became available. This interpretation of the function of depreciation would also have the broad social effect of giving a competitive advantage to old, large companies as compared with new smaller firms.

A third viewpoint is becoming quite commonly held in considering the function of depreciation to maintain capital. The argument here is that depreciation charges should be adequate to provide buying power equal to the actual loss of value. Expressed in another way, depreciation charges should be adequate to permit replacement of facilities based on new and significantly higher prices. It should be clear to all who have considered the problem, that depreciation charges determined on the basis of the cost of an asset purchased fifteen years ago will not be sufficient to replace the same or a similar asset at today's prices.

It has been argued by United States Steel Corporation representatives and others that this results in a hidden taxation of capital, and I thoroughly agree. There have been estimates that indicate that about $7,000,000,000 a year, or one third of what is now reported as earnings of manufacturing and utility companies, is really represented by cost. Mr. Wilbert A. Walker, of U. S. Steel, in an article in the December 1956 issue of the "Controller", reported that over

the fifteen year period from 1940 to 1955 the increase in replacement cost for equipment used by U. S. Steel was approximately the equivalent of 7 per cent per annum compounded. This was based on the Engineering News-Record index of construction costs, one of the generally accepted indexes and one which U. S. Steel believes gives the closest overall approximation of the effect of inflation on its facilities costs. Mr. Walker also argued that accelerated amortization is no real solution to this problem. He stated it as follows:

> "For many companies the addition of amortization on new facilities to so-called regular depreciation on older facilities may approximate, temporarily, a truer total of depreciation on all facilities based on current dollar values. But it automatically generates something of a future crisis."

Depreciation *is* a dilemma, however, and we should not permit ourselves to think that the viewpoint outlined by Mr. Walker is universally accepted. Not too long ago, the president of the A.F.L.-C.I.O. in a letter to the Secretary of Commerce, stated that corporation profits reported by the Department of Commerce are currently understated by 3 to 4 billion dollars. He requested the department to prepare a regular depreciation adjustment series in order to account for the effect of "rapid depreciation methods under the 1950 and 1954 tax law changes." The weight of management opinion in the United States appears to agree that depreciation charges, on the contrary, are understated, with a resulting overstatement of profits and overpayment of taxes.

Cost Indexes and Depreciation Adjustment

It has been suggested that index numbers, such as the construction cost index of the U. S. Department of Commerce, be used to adjust the amount of depreciation charges to replacement values. Index numbers produced by a government agency seem to hold out the hope of a uniform method of adjustment of depreciation which would provide reasonable equity to most businesses. It would also permit consistent practice and avoid the problem of judgment in replacement depreciation and the possibility of tax loopholes.

Index numbers, unfortunately, are not quite as simple as they may seem. Consider, for a moment, an index number with which most people are familiar, the U. S. Bureau of Labor Statistics Consumer Price Index, often called the cost-of-living index. This is the index that sends wages upward through direct tie-ins in union contracts and is often front page news. The index is based on the prices of 300 goods and services of a type and quantity considered representative of purchases of families under the $10,000 a year bracket.

The major problems the B. L. S. faces in compiling the index are changes in family buying habits. Items are constantly added and deleted in order to reflect current tastes. Some of these changes may actually reflect a higher standard of living rather than truly higher prices. For example, the index now includes such items as dinners out, and hotel and motel rates on vacation trips. The prices used in its compilation are normally quoted prices, while many consumers actually manage to get better bargains through discount houses or through hard bargaining with automobile or appliance dealers. The most basic problem of this index, which would also affect the indexes applied to industrial equipment, is that of quality improvement. Automobile prices have been in the index for some time without adjustment for quality. If General Motors suddenly began producing 1938 Chevrolets, few people would be willing to spend the same number of today's dollars for such a car as for the current model.

Many of these problems carry over into all indexes. Further, an index is an average and rarely gives a good answer to replacement values in a specific situation. A comparison of current values, as determined by the application of index numbers, with the valuation of appraisers who are experts in their field frequently reveals wide differences. These differences come about partly because the rate of technological obsolescence varies in different industries and types of equipment and so does the size of the market for used equipment. For example, many standard items of printing equipment, both letter-press and offset, purchased new ten years ago can be sold today in the open market for as much or more than their original cost.

The only method of adjustment that appears to me to provide for a presentation of true conditions in the balance sheet and the income statement is a revaluation of assets. This method has been used in countries which have been subjected to particularly intense inflation. An example is the Asset Re-valuation Act passed in Japan.

There is, in addition, the problem that the fluctuating value of money is a two-way street. If depreciation on replacement values is to be deducted as an expense during a period of rising prices, why should not the same principle apply to a period in which prices shrink and the value of money is rising? This is not merely an academic question. While many economists feel that we are in a long-term trend of inflation, the monetary history of the United States reveals a fluctuating pattern. There is no doubt that the long-term value of the dollar has declined, steadily, and particularly so after wars. There are, however, throughout our history, periods of significant deflation and it is necessary, I think, to be somewhat skeptical of any argument which says such periods will not occur again.

Since our attitude toward depreciation has been greatly influenced by the income tax laws, there is a tendency to use the shortest asset life for depreciation purposes which will be acceptable from an income tax viewpoint. This practice, of course, can also be defended as presenting a conservative balance sheet. There is a point, however, at which "conservative" comes into conflict with "true." There are many assets, both of real property and of machinery and equipment, in use throughout the United States and performing efficiently, which have been fully depreciated on the books. The tendency to shorten the lives of assets for depreciation may serve to cast a cloud over claims of understated depreciation.

Depreciation In Figures Which Management Uses

While depreciation has received most attention in considering its effect on taxes and reported profits, information on depreciation is important to management for many other reasons. Depreciation is, of course, an important ingredient of product cost. In some cases, depreciation is charged primarily for purposes of valuing inventory and is not a factor in measuring managerial performance. In other situations, both the current actual costs and budgeted costs are compared on the same basis and the depreciation method does not affect the comparison. In still other cases, the depreciation amount is relatively small.

However, when varying depreciation methods are in use and age of assets varies widely in the application of depreciation for determination of product costs for management decision, these differences can create important problems. Where different depreciation methods are in use and assets have been acquired at different times and at different values of the dollar, the use for determination of product cost of depreciation recorded in the general books can lead to unsound management decisions. If management operates on the basis of such figures, it may decide to assign the bulk of operations which can be performed on either a new or an old machine to the older machine, since it shows a lower unit cost. The actual fact may be, and probably is, that it would be more profitable to use the newer machine. Accounting practices which create such situations are certainly inadequate and tend to cast doubt on the usefulness of accounting information when it is placed in the hands of practical operating men. An even more common effect of this kind of depreciation accounting is a distortion of product costs and a false statement of product profitability. While direct costing may avoid this dilemma, it also avoids any reflection in product costs of the cost of the use of facilities.

For these reasons, many companies follow the practice of recognizing depreciation on productive replacement values for purposes of determining product costs. There are various methods of applying this principle. One effective method in common use is based on establishing standard machine hour rates on a predetermined budgeted basis, including depreciation calculated on productive replacement values by straight-line methods. These rates are used to establish product costs. Depreciation based on conventional accounting methods, including appropriate double-declining balance, sum-of-the-years digits and 60-month amortization methods, is used in the financial accounts without consideration of replacement depreciation. The difference between the depreciation recognized in product costs and the depreciation recorded on the general books is charged or credited to an inventory variance account and written off monthly. The result is a valuation of inventory at standard cost, which includes the replacement value straight-line depreciation.

Another basic method for applying realistic depreciation for product cost purposes is to compile this data statistically, apart from the accounts. The statistical derivations are used in the preparation of product costs for management decision purposes. Under this method, of course, an integrated cost system cannot be operated and the reported results will not be in agreement with the results anticipated from product cost figures unless the adjustment is taken into consideration. This method, however, has the flexibility characteristic of cost systems which are not tied into the general books, in that changes in the statistical costs can easily be made.

Regardless of whether the vagaries of depreciation accounting complicate the determination of product costs for a specific company, the impact of inflation has clearly created a problem for all industries in the replacement of depreciable assets. Certainly all accountants have an obligation to present to management sufficient data to permit a full understanding of this problem and to assist in the preparation of plans necessary to maintain physical facilities at a satisfactory level of performance. It, therefore, seems to be sound practice that, even if product costs can be determined adequately with the depreciation recorded on the general books, a compilation should be made of the proper reflection of the replacement value of plant. In developing the long-range plans for a business, it would also appear sound and essential to estimate the rate of obsolescence, the rate of inflation, and the necessity to provide more complex and expensive facilities to replace relatively simple ones, in order to maintain competitive position.

In larger companies, replacement of fixed assets might become almost a routine affair, since the company's total assets may be numerous enough to be replaced at staggered intervals without specific plans in this respect. Many small and

medium-sized companies, on the other hand, have made their major investments in machinery and equipment in a relatively short period of time and they may be faced with a potential "wonderful-one-horse-shay" situation. If long-range plans are not made soundly and assets replaced on a planned basis, a company may find that all of its assets are suddenly no longer competitive, that large amounts of funds will be required to replace their efficiency, and that the funds to do so are not available.

Where We Stand

In any event, I am convinced that depreciation is a subject worthy of much attention on the part of accountants. In this article, we have examined briefly the problems involved in utilizing depreciation information in determining the net income reported to management and stockholders, in determining product cost for purposes of pricing and sales emphasis, in providing management with facts for decision in problems relating to depreciable assets, and in depreciation's prime function of providing funds required for replacement and maintenance of facilities. In the past, accountants have been forced to use assumptions in order to apply the cost of depreciation to indivdual periods and never have been able to trace depreciation cost directly to periods. The assumptions concerning the way in which an asset depreciates and the basic rate of depreciation have been subject to rather little actual analysis, and great progress can be made in this field. The trend away from the straight-line method of depreciation and toward sum-of-the-years digits and double-declining balance methods has been continuing, but this represents only a short-term and limited answer to the tax and valuation problems connected with depreciation.

We have discussed the various points of view that have been applied to depreciation's function in maintaining capital. These viewpoints vary from the most conservative view, which argues that depreciation charges should recover the number of dollars capitalized in the accounts at the time that the asset was acquired, to the most radical point of view that depreciation charges should provide funds necessary to maintain a company's present competitive position and earning power. The most common viewpoint presently held by management is that depreciation charges should provide dollars of a purchasing power equal to the historical dollars which are being depreciated. This replacement point of view and the complications caused by inflation are the heart of the depreciation dilemma.

We have tried also to examine the various approaches which have been taken and which have been proposed as solutions to the problems of depreciation,

presented by conventional accounting methods. Unfortunately, there is no simple answer. All of the proposed solutions have some weaknesses. It may very well be that *any* method evolved will have significant weaknesses, because of the basic fiction of the dollar as a stable unit of value. The problem is an important one, however, and accountants must continue to work toward improved methods which can be commonly applied and which will provide clearer answers to the depreciation dilemma. A workable solution would be a great contribution to American industry and it is a challenge to us all.

UNDERSTANDING DEPRECIATION

by Harold W. Fox*

Under the heading, "Misunderstanding Depreciation," Mr. E. J. Schmidlein, Jr., points out in the June, 1958 issue of the *N.A.A. Bulletin* that there is "wide circulation of (the) fallacy that depreciation is a source of funds . . ." We accountants may have contributed to the impression that depreciation is a source of funds because, in the statement of sources and application of funds, its place is under sources. The implication that capital funds rather than cash funds are involved is generally understood by accountants but may need clarification for other readers. However, semantics aside, depreciation does have an impact on funds in a business world where:

1. There is separation of ownership and management in publically-owned enterprises.
2. The excess of revenue over costs is reduced about 50 per cent by taxes.

The separation of ownership and management often brings a conflict of interests. Stockholders want dividends, current or prospective; whereas managers may favor the safety in retention of funds. Reluctance or restrictions to pay dividends in excess of current earnings places a limit on the cash drain. Depreciation reduces current and future book profits (equivalent to the value of assets acquired previously). Thus, the amount of depreciation is available for investments. For this reason, an aggressive business with high annual depreciation charges is attractive to growth-minded investors. Income-minded investors prefer a business with accelerated depreciation for its near-future dividend potential (when the assets will have been fully depreciated before cash is needed for replacement).

Taxes have become a key factor in business conduct; controversy over "proper" depreciation rates is often a crucial tax matter. Depreciation, of course, conserves current and future cash funds by reducing the profit on which taxes must be paid.

Let us keep in mind Marion H. Simpsen's statement in "The Fallacies and Postulates of Accounting" in the February, 1958 issue of the *N.A.A. Bulletin*, "A depreciation charge does not provide cash in itself." The above comments are intended to show that it acts as a brake on the erosion of funds. It is hoped that this rejoinder may contribute to understanding depreciation.

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Depreciation Accounting in The Atomic Energy Commission

by JOHN R. CROXALL

TRADITIONALLY, depreciation accounting for assets owned by public bodies has been confined to assets which are revenue producing. The National Committee on Municipal Accounting in Bulletin No. 5, "Municipal Funds and their Balance Sheets," June 1947, gave these following reasons when pointing out that there seems to be little occasion for recognizing in the general accounting records the depreciation of general municipal buildings and equipment:

1. "It is not necessary to know the depreciated or replacement values of municipal properties, since property values cannot be used as a basis for credit.
2. "Since the municipality as a whole is concerned with operating profit or loss only in the case of utilities and other self-supporting activities, it is not necessary to account for depreciation in the general accounts.
3. "If depreciation is accounted for, the depreciation reserve has no importance unless it is a cash fund designed to replace worn-out properties. This is usually impractical, where not illegal."

Even in 1952, the General Accounting Office, in its "Statement of Accounting Principles and Standards for Guidance of Executive Agencies in the Federal Government," would go only so far as to state that an agency *carrying on a business activity* should capitalize plant and equipment and should include under expense the charge for depreciation in arriving at its profit or loss for a given fiscal period.

Nevertheless, early in the development of the financial policies to be followed by the Atomic Energy Commission, its management determined that the accounting policies and methods developed by industry and the public accounting profession as being best suited to the needs of industry, should be followed. The commission's position was stated in a letter dated August 2, 1948, from David E. Lilienthal, then Chairman, to the Honorable Bourke B. Hickenlooper,

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Senator from Iowa and then Chairman of the Joint Committee on Atomic Energy, as follows:

> "The commission has taken the position that industrial accounting procedures and the auditing standards of public accounting are best suited to account for and report on this large industrial undertaking and to protect the interest of the Government. . . . When the new system has been installed and is functioning in all accounting offices of the commission and its major cost-type contractors, it will be possible for the first time in the history of the atomic energy development to present financial statements comparable to those of a typical industrial concern."

In its January 1950 report, "Atomic Energy and the Physical Sciences," the commission stated, "With the installation of a modern industrial accounting system and development of a common basis for budgeting and reporting, those responsible for managing the atomic energy project are now beginning to get information of the type generally considered essential for effective financial administration. In addition to periodic financial statements on current operation of each A.E.C. office and its contractors, the Commission receives reports comparing operating costs as incurred with the budget estimate—information not available before."

Rocky Road to Depreciation Accounting—and Ways of Smoothing It

The same report also stated, "The Commission's accounting system provides for recording depreciation as a cost but, since the Commission requests funds for replacement of fixed assets only when such a replacement is actually required, the costs used in the budget estimates do not include depreciation." Here, in a sentence, is the stone on which Federal agencies trip when considering customary industrial depreciation accounting practices. Unfortunately, the solution is not so simple as stating, "Put depreciation costs in the budget estimates."

Budget comparisons and control over costs chargeable to a Congressional appropriation are extremely important to a Federal agency financed by Congressional appropriations. If the Congress decided to cut the budget estimates by a fixed percentage and these budget estimates included depreciation costs, the effect on controllable costs would be exaggerated. For example, if half the cost estimate for a particular work program consisted of depreciation costs and the Congress ordered a 15 per cent cut in the estimate, costs other than depreciation would have to be reduced by 30 per cent to remain within the revised estimates. Although it might thus appear that customary industrial deprecia-

tion accounting and the requirement for costs excluding depreciation for appropriation purposes are completely incompatible, there are various methods of accumulating costs so that statements can be prepared excluding or including depreciation costs:

1. Two sets of cost accounts can be maintained. For each cost account used to collect costs that are comparable with budget estimates, a companion depreciation expense account may be set up. The obvious disadvantage of this method is the duplication not only of accounts but also of accounting operations. For each distribution of costs from a regular cost account, there would have to be a duplicate distribution of depreciation expense from the depreciation cost account. For a simple accounting operation perhaps this would be feasible. It would not be feasible for the widespread atomic energy program, because of the complex accounting requirements of that program.

2. A second approach to the problem would be to maintain only the customary single set of cost accounts, including depreciation expense in the accounts as another element of cost. Although, when costs are distributed from one cost account to others, the exact amount of depreciation expense finally appearing in an end cost account would be unknown, statements excluding depreciation expense could be prepared by eliminating such expense on some equitable basis. Trial distributions of depreciation expense only could be made to develop reasonable bases for eliminating the depreciation component of costs included in the end cost accounts.

   Although "reasonable" bases could be developed, this method would not be adequate or satisfactory in any case where a cost limitation on a particular activity had been placed either by the Congress or, within the A.E.C., by its management. Where the actual costs excluding depreciation come close to the cost limitation, a careful and accurate determination of costs is necessary, especially when there is a legal limitation on the amount of cost, excluding depreciation, that can be incurred. There is an objection to this approach from the reporting function. Within the A.E.C. considerable pressure is exerted each month in an effort to "close the books" and turn out statements at the earliest possible time. Stringent deadlines have been established for each reporting level so that consolidated commission-wide cost and financial statements can be issued with a minimum time lag after the close of the accounting period. The addition of even one more reporting step—the elimination of depreciation expense after total costs have been determined—would be undesirable.

3. A third solution to the problem would be to maintain two sets of cost accounts but to limit the cost accounts for depreciation ex-

pense to those pertaining to manufactured products. A separate depreciation expense account would be established for each product-manufacturing operation so that the full cost of producing the item for inventory could be determined. Depreciation expense applicable to other operations, such as research, would be collected in a single account. Depreciation costs that normally would be subject to redistribution, i.e., overhead depreciation expense and depreciation costs of service activities, would be costed against end-product accounts by allocation.

Depreciation Policies of the Commission

The third approach is the one that has been developed within the A.E.C. To the extent practicable, plant and equipment items are identified with a particular product-manufacturing operation or with the nonmanufacturing activities. Direct depreciation costs then are determined for the product-manufacturing operations or for the nonmanufacturing activities. Plant and equipment items which cannot be identified with product-manufacturing operations or which are not used directly in the nonmanufacturing activities become the base for determining indirect depreciation expense. The indirect depreciation expense is allocated to product-manufacturing operations and to the nonmanufacturing activities; therefore, the total amount of depreciation expense is allocated. Only in the case of product-manufacturing operations is depreciation expense determined in detail.

Heavy investment in plant and equipment is inherent in the atomic energy program. In the space of 15 years an industry with gross plant and equipment assets amounting to 6.6 billion dollars has been developed. It is not surprising, then, to find that many of the depreciation policies pertinent to publicly owned utilities, which are also characterized by a large plant investment, have been adopted by the A.E.C.

Plant and equipment assets are grouped in accounts that are classified according to type of property. Examples of these "type" accounts are buildings, sewage systems, communications systems, laboratory equipment, process equipment, and shop equipment. Supporting each of the accounts are detailed property-history records in which the costs of the items are recorded.

The commission has compiled a list of service lives and depreciation rates for each type of property item. This list is used by all components of the atomic energy program; therefore, a machine used in Oak Ridge, Tennessee, is depreciated at the same rate as a similar machine used in Hanford, Washington. The initial listing was based primarily on the service lives published in the U. S. Treasury Department's Bulletin F. However, departures are made from the

Bulletin F service lives where conditions indicate different service lives are applicable to commission property.

As a general rule, the straight-line method of assigning depreciation expense to accounting periods is used within the commission. However, if some other method, such as the units-of-production method, appears to be particularly applicable in certain instances, that method is used.

Depreciation costs are recorded monthly, for which a simplified approach to a monthly accrual has been devised:

1. Based on the depreciation rates for the individual property items comprising each plant and equipment type account, a composite depreciation rate is computed for each account. This rate remains unchanged unless significant changes occur in the composition of the account.
2. The composite depreciation rates are applied to the January 1 or July 1 account balances to determine a monthly depreciation expense. The amount so determined is used for the next six months unless significant additions or retirements are made during the period.

It is interesting to note that this simplified approach is not always used where property history records are maintained on punch card accounting machines. Some A.E.C. contractors using these machines in property accounting find it more convenient to recompute depreciation expense monthly. A depreciation expense amount is punched into each property history card and a summary of additions and retirements during the month reflects the amount of change in the monthly depreciation accrual.

Summary

As the industrial benefits and applications of the atomic energy program expand, the wisdom and foresight of those conceiving the accounting policies of the A.E.C. become more evident. The commission is demonstrating successfully an integration of industrial accounting, with its concern with total costs, and governmental accounting with its concern with appropriation limitations and controls. It is true that integration is achieved at a price. Maintaining separate accounts for depreciation costs, even to a limited extent, does add to the accounting workload. However, the additional effort permits:

1. Stating manufactured inventories on the balance sheet as assets and at full cost.
2. Determination of full costs of products and services that may be sold.

3. Determination of a full-cost base for establishing a rental price on uranium products that may be leased but not sold.

By establishing a policy of basing prices for products sold or leased or services furnished, on a full cost basis—costs including depreciation expense—the A.E.C. assures the taxpayer that there will be no subsidy of these activities by public funds. It also assures the purchaser of its products and services that charges are made on a full cost, but not a monopoly, basis.

SUM OF THE YEARS-DIGITS DEPRECIATION CAN BE EASY

by E. J. Kingsbury, Jr.*

Sum of the years-digits depreciation is a fine thing. Our first year wasn't too hard to manage, but each year the detail became more and more cumbersome. We had to find a new way to figure it. Last year we found it. We think it is really good. Just look at the advantages:

—Simple to figure. Clerical help can do most of it.

—Needs only 4" x 6" cards (Exhibit 1) and an adding machine. No analysis sheets.

—Easy to check for complete accuracy.

—Easy to compare depreciation from year to year for any item or group.

—People not familiar with accounting can easily understand it.

—At the start of the year you can make a mighty close estimate of the year's final depreciation figure.

—At mid-year you can start preparing your final figures. Work at your leisure and finish up long before the year-end.

If you don't believe all that, I don't blame you. A year ago I would not have believed it myself. But then we hit on the two keys that made it all simple. There was a lot of detail, but we worked on it as we had time from mid-year to year-end. For the first time during the year-end closing and auditing, we did not have our usual struggle with depreciation. The procedure has had no official review but we feel it is in line with regulations.

Here are the two keys.

The first key is Section 1.167 (a) 10 (b) of the Internal Revenue Service regulations on depreciation. It lets you assume "that all additions and retirements during the first half of a given year were made on the first day of that year and that all additions and retirements during the second half of the year were made on the first day of the following year. Thus, a full year's depreciation would be taken on additions in the first half of the year and no depreciation would be taken on additions in the second half."

That is the key to the last two advantages I listed. At the start of the year you know the depreciation on assets already acquired. To that you add your estimate of the depreciation on capital assets to be received during the first half of the year only. Most of them would already be on order, so you can come close. You can't take depreciation on anything that comes in after mid-year, so you can start your final computations then.

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That regulation also leads to the second key. It means no fractions for partial years. That really simplifies the figuring.

The second key is the Factor A, on each card. That is the net amount to be depreciated, divided by the sum of the years-digits. Factor B is the remaining years of life. Depreciation equals A times B.

Now I said this is easy. And it is. But there is still a lot of detail. Perhaps you feel it is too much work to figure depreciation all the way to the end. But look at the cards. See how easy it is to check right away that the figures are right, to compare one year with another, and to explain it to someone who has a hard time with that sum of the years-digits business.

What's more, it is simple to enter all the figures while you are at it. Just go right up the depreciation column, down the accumulated column, and put in the net figures on the last line.

If you prefer to use a computing machine and tabulating cards, it should work fine. We actually found our second key, Factor A, when we were trying to work out this accounting for such a machine. But then we had to cancel the order for the machine and we changed to the cards shown.

Two Charts to Make; Nine Steps in Card Preparation

First you need a chart like this for your fiscal year:

Assets Acquired			*First year of*
From	*Through*	*Assumed date*	*depreciation*
Jan. '54	June '54	Jan. 1, 1954	1954
July '54	" '55	" 1955	1955
" '55	" '56	" 1956	1956
" '56	" '57	" 1957	1957
" '57	" '58	" 1958	1958
" '58	" '59	" 1959	1959

This chart applies to fiscal years that are calendar years. Charts should not start before January 1954, the effective date for sum of the years-digits depreciation.

DEPRECIATION CARD

4315 42" Rotary Grinder Nov. '54 15 years

Cost 12,288.10 less salvage 700. = Net 11,588.10

divided by the SUM OF THE DIGITS 120 = 96.57 A

B	19-	Dep.(AxB)	Accumulated	B	19-	Dep.(AxB)	Accumulated
20				10	60	966	7,243
19				9	61	869	8,112
18				8	62	773	8,885
17				7	63	676	9,561
16				6	64	579	10,140
15	55	1,449	1,449	5	65	483	10,623
14	56	1,352	2,801	4	66	386	11,009
13	57	1,255	4,056	3	67	290	11,299
12	58	1,159	5,215	2	68	193	11,492
11	59	1,062	6,277	Net	69	96.10	11,588.10

EXHIBIT 1

Your second chart should look like this:

Years of life	*Sum of the years-digits*	*Years of life*	*Sum of the years-digits*
4	10	15	120
6	21	20	210
10	55	40	820

For short lives it is easy to add up the figures, $1 + 2 + 3 + 4 = 10$. For long lives use the formula, $\frac{1}{2} N(N + 1)$. In the same example, $\frac{1}{2} \times 4 \times 5 = 10$.

For efficient preparation of the cards, I suggest these nine steps:

1. Reproduce 4" x 6" cards with the typed information as shown in Exhibit 1. If you have assets with more than a 20-year life, make a second set of cards with figures in Column B of 40, 39, 38, etc. down to 21. (No "net" figure at the end of this second group of cards.)
2. From your present records, copy the information at the top of the cards —identification, years of life, month (or date) acquired, cost, salvage value and net. Use separate cards for accessories, etc. with different lives or acquired at different times. (You may want to make a separate card for each item, especially if you have grouped your assets on a basis different from your acquisition date chart.)
3. Circle the years of life in Column B of the exhibit.
4. From the chart find the first year of depreciation that corresponds to the month you acquired each asset. Post that next to the years of life you just circled.
5. Summary cards are optional. You may want to make a summary card in the same form for each group of assets in the same account with the same years of depreciation. When you sort the individual cards, your entries in Steps 3 and 4 may help you put the right cards together. After you make the summary cards, better mark the individual cards, "see summary," so you won't take depreciation twice by mistake.
6. Fill in succeeding years. The year on the "net" line should be the last year you take depreciation.
7. Copy the sum of the years-digits on each card from the second chart.
8. Figure Factor A. Just divide the net amount to be depreciated by the sum of the years-digits.
9. The last step is in three parts. Try doing all three parts on each card together.
   a. Figure and enter depreciation on the card (A × B). Start with Line 2 in Column B and work up to the figure you circled in Step 3. Just the nearest dollar —no cents. (Skip the "net" line for now.)
   b. Figure and enter accumulated depreciation. Start at your top figure and work down to Line 2.
   c. On the "net" line under accumulated, enter the net figure from the top of the card. On this line the depreciation is the difference between the last two accumulated figures. It should be fairly close to Factor A.

Further Steps

Previous depreciation is optional information. For the record you may want to enter on the back of the card the depreciation taken to date.

To get this year's depreciation, total up the accumulated depreciation for this year on the cards. Then total up the depreciation you have already taken on these assets. The difference could be the depreciation to take on these assets this year.

As to fully depreciated assets, when there is no salvage value, you probably take these assets out of the accounts of capital assets and accumulated depreciation. We have found it convenient to do the same when there is salvage value. We put these assets in a separate account, salvage value of fully depreciated assets. There they stay until disposed of.

That's it. Hope you like it.

Issue All The Reports You Need — Here Are a Baker's Dozen

by HENRY C. CRISMAN

TO BE ABLE TO REPORT for assistance in making a decision, we must fully understand what we are reporting and the problem management has that needs a decision but, before we do this, we must be apprised of today's management and its problems. Industry today is a vital, dynamic thing, moving progressively onward. Our national economy—whether we measure it in terms of gross national product, gross inventories, the average size of families, or the consumption of automobiles—is expanding at a truly phenomenal rate. Many of our most urgent problems today—the shortages of engineers, schools, teachers, adequate highways and parking facilities—have been created almost entirely by the fact that our economy has been growing at a faster rate than even most optimistic planners expected.

This dynamic economy demands dynamic management, founded on optimism, capable of making the decisions necessary not merely to keep pace with competition but, wherever possible, to be ahead of it. No matter what their titles, today's financial executives will be no more than highly competent bookkeepers and accountants if they do not understand their responsibilities as members of the management team. Surely one of the first of these responsibilities is to provide factual data in an easily understood form, so that the over-all management decision, though motivated by optimism, may be firmly grounded in a complete, honest awareness of the company's actual conditions and prospects.

Thus, providing reports in this dynamic economy to dynamic management is a challenge. Accountants are noted for their middle of the road, firm, straightforward approach, not easily influenced by the "whims" of the times. This attitude need not be in opposition to the dynamic viewpoint. We must keep an analytical mind. Here are a few basic rules of report preparation:

1. It should have a message.
2. It should be easily understood by the recipient.

HENRY C. CRISMAN, Fort Wayne Chapter, 1956 is Director of Materiel, International Telephone and Telegraph Corporation, Federal Division, Fort Wayne, Indiana. He has been associated with this firm since 1951, serving in several administrative and managerial positions prior to being appointed to his present position in 1958.

3. It should be complete. Where prior comparable periods will add emphasis to the report, this information should be shown.
4. It should be timely.
5. It should be concise and to the point.

Who and What?

Let us go back to the origination or the changing of a report. We should always ask "Who? What? Why? When? and How?." First, who is receiving the report. Will it go to the president, vice-president, superintendent, foreman or all of these? A report directed to one particular individual should be designed to that person's likings and understanding, while a report to several individuals must be usable and understandable by all. For example, Exhibits 1, 2 and 3 are reports pointed to top management. They are "thumbnail" looks at profit and loss forecasts. In all three, a comparison is made available so that searching is not required. By looking at the prior year, budget for this year and actual to date, the trouble areas are easily located and corrective action taken.

	'57 Actual		'58 Actual		Budget Nov. '57		May Rev. '58	
	$	%	$	%	$	%	$	%
Sales								
Cost of Sales								
Gross Profit								
General and Administrative								
Operating Profit								
Other Income								
Profit Before Tax								
Tax								
Net Profit								

P & L - 57 - 58
(In Thousands)

This is a top-sided P & L showing the actual compared with budgets and can be reported monthly or period to date, or any period desired. This report shows over-all company operations.

EXHIBIT 1

	57				58			
	R & D	Mfg.	Total	%	R & D	Mfg.	Total	%
	$	$	$		$	$	$	
Sales								
Cost of Sales								
Gross Profit								
General and Administrative								
Operating Profit								
Other Income								
Profit Before Tax								
Tax								
Net Profit								

P & L LINES - 57 - 58
(In Thousands)

This exhibit breaks down the P & L by operational lines -- research and development and manufacturing. Commodity or product line could also be shown in a similar report. Again we report two periods for comparison.

EXHIBIT 2

	Current Look				Budget			
	R & D	Mfg.	Total		R & D	Mfg.	Total	
	$	$	$	%	$	$	$	%
Sales								
Cost of Sales								
Gross Profit								
General and Administrative								
Profit Before Interest								
Interest								
Profit Before Tax								
Tax								
Net Profit								

1959 FORECAST (in thousands)

A budget is established at the first of each year, and quarterly or as desired it can be updated and a current look made of the annual forecast. For comparison, however, always look back at the original budget to get the trend.

EXHIBIT 3

What are we going to report? Should the contents of reports consist of:

1. Items of interest to the accountant? (No)
2. Only a profit and loss statement and balance sheet? (No)
3. Budget comparisons, expenses, labor expended, cost variance reports, cost of manufacture reports, and overtime reports? (Yes, these and more, too)

It is our firm belief that an informed management is a good management. Such a management knows the results of the toil represented by the aggregate of company endeavors, and is better equipped for decision making. Exhibits 4 to 8 embody a group of useful reports of a type not always developed. Exhibit 4 represents the annual space available or proposed to handle the expanding electronics business. A horizontal bar chart with appropriate legend and remarks fully explain our expansion plans at a glance. Exhibit 5 is a personnel count report, merely a count of noses. The president finds this helpful. Ex-

EXHIBIT 4

	R & D		Mfg.		Other		Total	
	Sal.	Hr.	Sal.	Sal.	Hr.	Sal.	Total
Plant 1							
Plant 2							
Plant 3							
Pac. Div.							

PERSONNEL UTILIZATION

EXHIBIT 5

NEW BUSINESS POTENTIAL FOR '59
(In thousands)

Origin	R & D	Mfg.	Total
From Farnsworth R & D			
Joint Effort (Other Co's)			
New Contracts			
Total			

1959 BOOKING POTENTIAL (ORIGIN)

	Very Good	Good	Possible
Research & Development			
Manufacturing			
Total			

EVALUATION OF 1959 BOOKING POTENTIAL

EXHIBIT 6

hibit 6 gives bookings to date each year, showing both actual and potential. The potential represents requests for bids, actual quotations, or known business buys coming up that we have a good chance of obtaining.

Exhibit 7 supplies comparison of our business to show trends in type of

SUMMARY - 1959 BUSINESS (VS 1958 ACTUAL)
(In thousands)

	1958 Billings	1959 Billings (Est.)	1959 Bookings (Est.)
Research and Development			
Manufacturing			
Total			

BY FIELD OF INTEREST

Test Equipment			
Missile Guidance			
Counter-Measures			
Communications			
Infra Red			
Navigation			
Fuze			
Tubes and Components			
Misc. (Including Ind. Equip.)			
Total			

BY TYPE OF WORK

EXHIBIT 7

	1958 Billings	1959 Billings (Est.)	1960 Bookings (Est.)
By Services	%	%	%
Air Force			
Army			
Navy			
Other			
Total			
By Type of Contractor			
Prime Contracts			
Sub Contracts			
Other			
Total			
By Type of Contract			
Cost Plus Fixed Fee			
Fixed Price			
Mixed			
Total			

DISTRIBUTION OF OUR BUSINESS
(In thousands)

EXHIBIT 8

BALANCE SHEET COMPARISON (In Thousands)

Assets	At December 31 '56 $	'57 $	'58 $	'59 $
Cash				
Accts. Receivable				
Inventory				
Total Current Assets				
Investment				
Fixed Assets - Plant				
- Facilities				
- Lease Imp.				
Prepaid Expenses				
Total Assets				
Liabilities & Net Worth				
Loan A/C				
Accts. Payable & Other				
Provision for Tax				
Total Current Liabilities				
Investment A/C				
Total Liabilities & Net Worth				

Even on the balance sheet the trend by years is very important. Another feature added here, not shown on most balance sheets, is the current turnover and investment ratios shown in the general data section.

GENERAL DATA

Current Ratio	
Inventory Turnover - Annual	
Return on Investment	
Earnings Per Share	
Interest Income	

EXHIBIT 9

	Total Invest. A/C	P. A. T	Av. Invest. A/C For Yr.	Return
	$	$	$	%
Dec. 31, 1956				
1957				
1958				
1959				
1960				
1961				
1962				
1963				

RETURN ON INVESTMENT
(In Thousands)

Return on investment - one of the few true measures of operations - is based upon the average investment for the year; we use gross investment excluding reserve for depreciation for this measurement.

EXHIBIT 10

work and also to portray research and development business in its relation to manufacturing. Exhibit 8 constitutes a quick look at where our business is coming from. These reports are probably peculiar to companies that have a large share of their business in research and development contracts, but note the simplicity of the report, uniformity of size, and completeness of items covered.

Why, When and How?

Why are we reporting? Other than reports required for corporate record, all reports should be for one purpose. This is to assist the individual receiving the report to evaluate his performance in order that he may achieve better control of his operations and improve his performance, thus achieving greater profits for the company. Exhibits 9 and 10 are two good examples of why we prepare

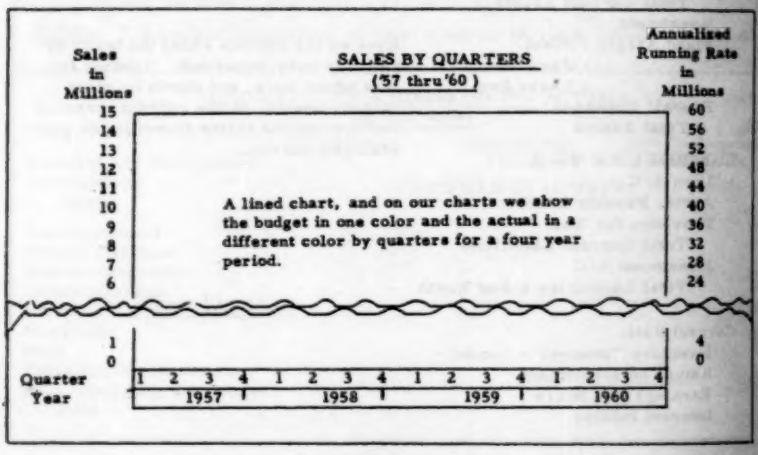
Sales in Millions
SALES BY QUARTERS
('57 thru '60)
Annualized Running Rate in Millions
15 14 13 12 11 10 9 8 7 6
60 56 52 48 44 40 36 32 28 24
A lined chart, and on our charts we show the budget in one color and the actual in a different color by quarters for a four year period.
1 0
4 0
Quarter
Year
1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4
1957
1958
1959
1960

EXHIBIT 11

reports. The former fully explains the assets on hand and the company's liabilities. It is used by the stockholders, creditors and investors to get a financial look at the company operation. Even on this report, you will note prior years' reporting and tomorrow's. Exhibit 10 is a top-side return-on-investment report. It does not include a host of detail back of investment since, if we wanted to know this detail, we would have a report showing such detail. This report was designed to show return on investment only.

Reports within the organization should be written rather than typed, except for official company or high-level reports. Most reports can be expressed in even dollars and should be so reported for brevity.

When should we report? Timeliness of the report is important. A report that was invaluable yesterday may be worthless tomorrow. A cost analysis showing the profitability of a new order after a competitor has taken the business is worthless. For reasons of this character:

1. The report should be issued as soon after the reporting period as possible.
2. Reports can be issued at any frequency from hourly to annually, depending on the need for information.

The last three exhibits have been selected to exemplify reports of varying frequencies, Exhibit 11 is a quarterly posting of the actual figures with estimates for future. Projections can be made by posting the budget for as long a period as desired. Exhibit 12 is posted annually for actual results and estimates are revised each year also. Exhibit 13 represents experience posted each six months but the budget figures are developed annually.

How should the report be prepared and how presented? First comes preparation Translucent paper and reproduction facilities have aided the accountant and, when possible, reports should be prepared on this type paper for use in reproduction, in order to:

1. Eliminate typing
2. Eliminate double-checking
3. Aid in reproduction at any time

Presentation comes next. Communication is the accountant's big problem. We are not salesmen of ourselves nor of our wares. We think we are supposed to control, judge, audit, and report the operations of other people. This is too presumptuous a concept. To break down barriers, we should do a better job in presenting our reports. Some tactics to be considered are:

	R & D			Mfg.			Total		
	S	P*		S	P*		P. A. T.		
	$	$	%	$	$	%	$	$	%
1952									
1953									
1954									
1955									
1956									
1957									
1958									
1959 (Est.)									
1960 (Est.)									
1961 (Est.)									
1962 (Est.)									
1963 (Est.)									

SALES & P & L

A twelve year look -- seven backward and five forward -- on sales and profits by outlet. Normally, we also show a graphical presentation of this same information as a page 2 of this report.

*Profit Before Tax

EXHIBIT 12

1. Make the report concise and high-light important points by use of color, indentations, footnotes, etc.
2. Show comparisons where they express a significant relationship.
3. Show ratios and percentages.
4. Use charts and graphs. A picture is worth a thousand words.
5. Present reports in person whenever possible. Regular management meetings are good opportunities to acquaint management personnel with facts they should know, but do not always grab the limelight for yourself. Furnish other people information, so that they can make a personal report preparation.

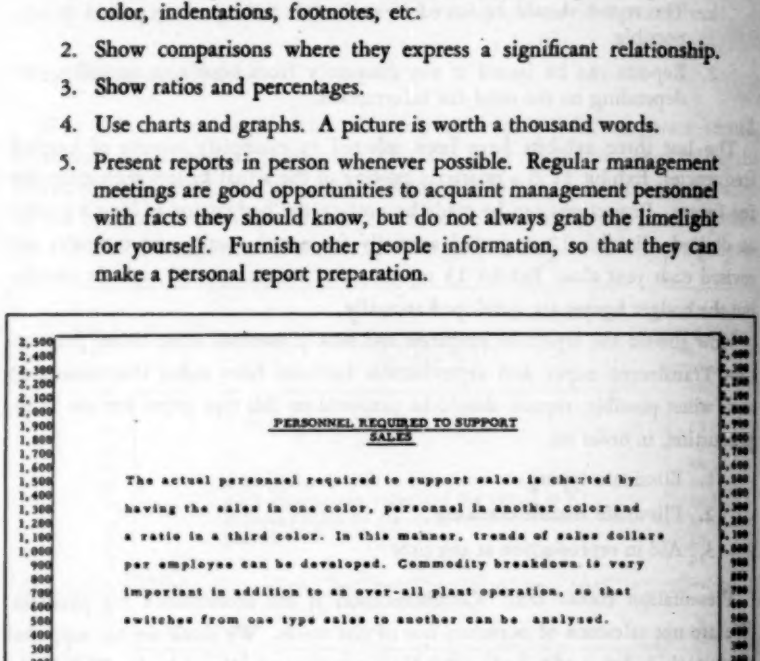
PERSONNEL REQUIRED TO SUPPORT SALES
The actual personnel required to support sales is charted by having the sales in one color, personnel in another color and a ratio in a third color. In this manner, trends of sales dollars per employee can be developed. Commodity breakdown is very important in addition to an over-all plant operation, so that switches from one type sales to another can be analyzed.
Jan. 1 July 1 Jan. 1 July 1 Jan. 1 July 1 Jan. 1 July 1 Jan. 1 July 1 Jan. 1 July 1
(1959 to 1963)

EXHIBIT 13

Are Your Reports Invaluable to Your Management?

In any type of business today, the external measure of company performance, as of individual performance, is largely financial. Reporting is the tool by which good management measures and is measured. We accountants must prepare these final—financial—measurement reports, but we cannot overlook the truly important internal reports needed to make our companies successful. We must get the right information to the right people at the right time, so that the right action can be taken. Remember that a report misunderstood, untimely and misdirected is worth less than a cent—the cost of the paper; in fact, it would be misleading and a detriment. On the other hand, a report properly prepared and noting all the qualifications which have been mentioned is invaluable.

Are we dynamic or static accountants in the reporting field? This is the question. What is your answer?

DEPRECIATION ACCOUNTING FOR IDLE EQUIPMENT

by R. K. Loester*

A RECENT READING of the *N.A.A. Research Report* "Current Practice in Accounting for Depreciation" reminded me of a technique our company found useful. It may be of interest to N.A.A. members whose companies go from a highly-centralized to a decentralized structure.

Until five years ago our company was strongly centralized. The principal aim of the accounting system was to develop information to help the home office top management to arrive at operation decisions. One important piece of information was total depreciation on idle equipment. This equipment was transferred to a central warehouse from our various field operations (twenty-five separate and independent branches). The depreciation expense was booked in one account for depreciation—idle equipment. This knowledge permitted examination of all requests for new equipment with a properly jaundiced eye.

In the beginning of 1953, the organizational structure of our company was changed from a highly-centralized one to an almost completely decentralized one. Our accounting system was transformed piece-meal as we observed the needs for information by the district manager.

For some time after 1953, depreciation on idle equipment in the central warehouse was not assigned to districts. The home office directly managed the central warehouse and bore

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the depreciation expense. Our district managers were able men who realized quickly that depreciation expense on idle equipment could be avoided. All that was necessary was to transfer the equipment to the central warehouse. However, because we wanted to eliminate the side-stepping of cost responsibility and keep the advantages of centralized warehousing and knowledge of total cost, we still use the central warehouse and the single account but, at the end of each month, a special depreciation charge is made against each district. This charge is for depreciation on equipment in the central warehouse which came from the district.

Thus, home office management can still readily see the total depreciation cost of idle equipment. At the same time, the field management is fully conscious of the cost generated by idle equipment. Each district manager makes every effort to keep this cost down by actively utilizing or selling equipment charged against him. To make responsibility complete, gain or loss on equipment sold also goes to the district. There is an incentive to find a useful spot for equipment elsewhere within the company, for this relieves the district of the idle equipment depreciation.

We believe that, with these simple changes to fit an organization change, we have fully retained the centralized management knowledge. At the same time we have squarely placed the decentralized management responsibility.

ARE YOU BREAKING EVEN ON YOUR REPORTS?

by Michael R. Saksa*

CONSTANTLY, we read about the break-even point between the cost of doing business and the sales dollars realized from that business. The accountant also has his break-even point or points, namely, when to add that new report or when to reduce the volume of existing reports.

Shall he wait until management requests more intensive cost, profit, or operating data? Or should he take the initiative, presenting management with a new approach, a simpler form, a novel slant to the too often cut-and-dried existing cost and operating statements. On the other hand, when has an existing report reached the twilight zone of its usefulness?

Perhaps some benchmarks could be set up to serve as a guide for future action:

1. Is the existing report actually read and reviewed by management, or is it simply filed away upon receipt until the

(*Continued on page* 76)

* Supervisor, Cost Analyses, Indiana Harbor Works, Inland Steel Co.

Creative Accounting Pays Its Way

by A. J. BOWS, JR.

TODAY, THERE ARE MANY REAL OPPORTUNITIES for accountants and controllers to be creative in their work. This article will describe four potential areas, which may be identified as inflation, return on investment, inventory control and situation analyses.

Measuring and Countering Inflation

One area of accounting in which little practical work has been done and which may well be the most overlooked field in accounting today is: "accounting for inflation." Within this area, the accountant will find that serious study can help his management. The *Consumers Price Index,* published by the Bureau of Labor Statistics, which uses 1947-49 as an index of 100, is probably as practical a measure of the effects of inflation as any index which is readily available. The increases in price levels beginning with the year 1950 and amounting to nearly 25 per cent are as follows:

Year	*Each Year*	*Cumulative for:*	*Year*	*Each Year*	*Cumulative for:*
1950	2.8%	—	1955	–.3%*	6 years 14.5%
1951	8.2	2 years 11.0%	1956	1.7	7 years 16.2
1952	2.5	3 years 13.5	1957	4.0	8 years 20.2
1953	0.9	4 years 14.4	1958	3.8	9 years 24.0
1954	0.4	5 years 14.8	1959	?	?

* Decrease.

Based on these statistics, since 1950 the purchasing power of our money has declined about 25 per cent and since 1945, there has been a 50 per cent decrease. From the forecasts of future government spending, the recently authorized increase in the public debt, and further contemplated increases in debt, it is obvious U. S. businessmen are going to be faced with even greater inflation. The 3 per cent average annual decline in purchasing power of the dollar has been ignored by accountants in practically all reports prepared for management or

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public use. Inflation can have serious consequences on a business when its management does not have the facts presented in such a way that the inflationary bite can be recognized and, where practical, passed on to customers. Inflation has other effects on our whole system of business and government reporting. We hear government bureaus talking about the ever-increasing gross national product, insurance companies talking about the great expansion of insurance in force, and more and more people becoming members of the million-dollar round table. The average citizen consoles himself with his ever-increasing compensations.

The accountant should look behind dollar figures and attempt to determine if the company is doing any more than just receiving its share of the inflationary bite. The real danger of inflation is that it comes in small doses. Every year is "immaterial", but the total dose is staggering. A useful report that each accountant should seriously consider preparing for management purposes is an annual statement disclosing the effect of inflation on company earnings and shareholders' investments. A trend statement for five or ten years showing how the company progressed before and after consideration of inflation would also be valuable. By bringing the effect of inflation forceably home to management, there may be disclosure of important problems previously overlooked. A few questions will illustrate the type of information which can be developed:

1. What was the rate of return of profit during the past five years to shareholders, and how much of this rate of return represented "real profits" and how much their share of inflation?
2. What has been the company's own price index increase on its various products or services sold during the past five years, and how have these prices kept up with the inflationary level and with costs applicable to the company? This is an extremely lucrative area for possible increases in revenue. As an example, many bank fees and charges have not been revised for years. All service organizations charging minimum or flat fees should watch this area carefully.
3. What about the compensation of the company's two main groups of employees: (1) the officer and management group and (2) the wage-earner and clerical group? How have the average rates of pay for each of these groups gone up since 1950 and has each been treated fairly?
4. What about payments to officers and employees at retirement? Assuming that a plan was initiated a number of years ago and that your company decided certain benefits were necessary for the officers' and employees' well-being at retirement, how do these retirement payments today compare, in view of the inflationary bite

which has already taken place, and what will happen with respect to future inflationary bites?

5. What is the effect of inflation on the methods of financing the business? Obviously, during an inflationary period, it is generally preferable to finance with debt than to finance through equity funds. The reason for this is that the person who is willing to lend money for an extended period of time during an inflationary period does not get back the same purchasing power as he lent and, to the extent the lender loses, the borrower profits.

6. Has any attention been given to operating alternatives in the light of inflation? Real consideration of inflation also affects the buy or lease decisions made in connection with the construction of property or facilities.

8. What about payments to stockholders? If the company has been in the habit of paying, say, a flat amount per year or a fixed amount per share to its stockholders over the past nine years, it may be surprising to get down to "brass tacks" on how shareholders have come out. Obviously, $100,000 paid to shareholders in 1950 was worth 25 per cent more than $100,000 paid to them today. Therefore, unless payments have been increased per share by at least 25 per cent, the company has not returned to its shareholders the same effective dollar amount received by them nine years ago. Perhaps the officers and employees have been fairly compensated but not the owners. Too many times shareholders are overly enthusiastic about increases in dividend payments and do not realize the extent to which the increase they are getting, or perhaps some of the rise in stock prices, is simply the reflection of inflation.

The challenge to the accountant is to really get the facts and figures on inflation, to apply them item by item to every important facet of the business, to appraise this information first, and then pass it on to management. The results of a study such as this will be very profitable to the accountant as well as to the company, and may be eye-opening in areas of the business which need attention and thought.

Maximizing Return on Investment

Another excellent opportunity for a constructive approach to accounting is to apply the concept of "return on investment" to the business. This concept is very simple and very important. If there is $1,000,000 invested, obviously, there is always the alternative of selling out and putting the money in the security market or in other investments. Today, it would not be difficult to earn 3½ per cent after taxes in the municipal bond market, 5 per cent before taxes in

the utility bond market, and probably around 4 per cent before taxes in the stock market, without considering the possible appreciation in stock values. Management, therefore, should always be aware of the return it is getting in the business in comparison with alternative investments. A very good industry in which to use this type of analysis would be the textile industry where an analysis of profit returns over a fairly long period of time will indicate that many shareholders would have been a lot better off to have sold out and invested in government bonds (and stopped worrying about Mr. Benson, the Japanese, and the tariff structure.)

It is not too difficult a problem to appraise the over-all return on investment for a given year, but it may be a real accounting job when you try to appraise the return on investment of individual segments of a business. Because of the difficulty, this has been ignored by many accountants. However, it is a very profitable and challenging area into which the accountant should probe deeply. It is not a new concept. For example, the duPont Company has been using it for years (and with much success) and many other progressive companies in this country which are showing good profit returns, adopted this concept many years ago.

The real management-type accountant will look into some of the aspects of return on investment to see what can be done about improving the return and using it to effectively manage different areas of a business. Let us take a simple illustration. Let us say that a given business has a total shareholder investment of $1,000,000 and makes $50,000 after taxes, on this investment. The return is 5 per cent to the shareholders (before figuring inflation's bite which may be more than half of what the shareholders are earning). The problem is to determine where that money is invested in the business and how much return or profits are being made from the different segments.

For example, a banking or finance firm may have two divisions. One division has $750,000 invested in it and the other, $250,000. Each of them may make profits of $25,000 after taxes. In one case there is a 10 per cent return on investment and in the other case a 3⅓ per cent return on investment. Yet, many business organizations will pay the man responsible for the $750,000 investment as much as the man responsible for the $250,000 investment because they are both returning $25,000 after taxes. Management's thinking has been glued to the profit figures without realizing that it is really only fair and equitable to judge the results of profit efforts by considering the amount of money used.

Such a measure puts pressure on individuals responsible to use funds effectively and to make the greatest return, which is what the shareholder really wants. Stockholders' reports of such companies as General Motors, duPont,

Radio Corporation of America and others show that their top management incentive programs are based, not just on dollars of profit but also on dollars of profit in relation to the amount of money in use. Business of all sizes should consider this concept in judging their compensation plans so as to recognize each individual's real worth to a business.

The first problem from an accountant's or controller's standpoint is to determine the amounts of funds invested in the various segments of the business. This usually consists of the working cash, the receivables for any given product line or division, inventories applicable to each division, and specific property and equipment it uses. The total investment is then related to the profits for the same segment of the business. The determination of profits by division may also prove to be an accounting job because many businesses today still have not divided the sources of their profits or losses. After the return on investment has been determined, the accountant has an opportunity to assist management to increase the rate of return. Two alternatives are available. Either profit can be increased or management can reduce the amount of money tied up in a given segment of the business.

A reduction in inventory investment is a logical step in improving the return, and this possibility should be carefully studied. In many organizations, the accountants will have to work with people in the production control and scheduling divisions of the business in order to accomplish results, but someone has to take the lead and the strong controller or accountant is the logical person to begin initial research and to get the project under way.

The Crucial Matter of Controlling Inventory

In many companies—when interest, taxes, insurance, occupancy and obsolescence are considered—it costs between 20 per cent and 25 per cent a year to carry inventories. Obviously, with tight business conditions prevalent during the past few years, the lead time, or the time it takes from the date you order materials until they are received, has been reduced greatly for many products. For example, steel is certainly more accessible today and the lead time is considerably shorter than it was eighteen months ago. Similarly, on hundreds of other inventory items, many companies have not recognized the reduction in lead time and are buying and carrying unnecessary inventory quantities at a yearly cost of 20 per cent. To get and present the facts offers real opportunity for the accountant.

Management may say that the cost of analyzing the numerous items in inventory would be more than the results would be worth. This is not necessarily true. The first step would be to analyze and divide the inventory into, say, three

groups: Group A would be high-cost items making up a large percentage of the inventory investment and requiring close control; lead-time studies here may be very profitable. Group C would be the numerous small parts and supplies which usually require 65 per cent of the clerical work but account for only 10 per cent or 15 per cent of the investment. These can be controlled by storing minimum needs in bin packaging and having automatic requistitions for purchases. Group B would consist of the in-between items which require less clerical work than Group A, but lead times would be developed. By reducing lead times, improvement in inventory turnover will result and frequently there are substantial reductions in obsolescence costs.

Another related area in which new thinking is being done to speed up inventory turnover is in improving decisions on what inventory to make. Suppose there is a manufacturer in Dalton, Georgia, who is a producer of tufted rugs. The rugs generally are produced for fall and spring furniture shows. About the time of each show, there will be a fairly brisk buying season. It is important that the manufacturer produce and ship these rugs in a relatively short period of time. But the manufacturer has a two-fold problem. He does not know what he is going to sell and, in order to make whatever he does sell, he has to buy or produce certain yarns and fabrics ahead of time. And he is faced with the problem of keeping his inventory investment at a minimum. Heretofore, he has used the common-sense approach to the problem. He has been at the furniture show, he has talked to his salesmen, and he has received some orders from buyers. He looks at what he did last year and, based on all of these factors and his own judgment, he decides to make certain styles. He may decide that he is going to make them only to customers' orders. Of course, if he does this, he may find that he is not able to deliver a large quantity of some of the best selling items in his line because he does not have the proper yarn requirements or, when the orders finally come in, he will not have the physical facilities to turn the rugs out in time.

From historical data, which shows the timing of incoming orders in past seasons and the past trends of buying, it is possible to scientifically predict the odds a manufacturer will have of selling any given quantity of any particular item. The principle is very similar to the one followed in reporting upon the last presidential election. A forecast of the final election results was made on the basis of the trends tabulated in the early evening returns. These returns were taken and compared with the same returns in the previous election. By projecting this comparison, it was possible to forecast the final returns early in the evening. As the evening progressed, the forecast got better. Shortly before the final returns were in, the forecasts were extremely good! This same principle

can be applied in estimating the quantity of inventory to manufacture and, in effect, the same type of odds result. That is, the farther you are from the end of your season, the more error there is in your prediction. As you approach the end of the season, these statistical techniques get very sharp and the odds on being wrong are very small.

The interesting thing is that, when this approach is presented to hardheaded mill managements, they generally are very anxious to use it in deciding what to make. While the judgment factor is always present in deciding what particular style or item to make, this new technique helps considerably in determining what the odds are of selling a particular item. Prior to using mathematical techniques, they were simply guessing. The introduction of scientific techniques to the problem of determining the amount of inventories which have to be stocked or manufactured can result in profits to your management because it sharpens their thinking, helps cut down on costly mark-downs, and provides an orderly and scientific method for handling a problem which is at the heart of practically every manufacturing company's operating situation.

Conducting Aggressive Analysis in Selected Areas

Once you have worked on inflation and return on investment, there are other problems today which can be given constructive thought by both the accountant and management. Here, briefly, are a few areas:

1. If the business is subject to seasonal peaks, consideration should be given to methods of leveling these out and thus increasing profits, particularly in the area of financing of customer's purchases in off-peak seasons. Customers can frequently be included to buy off-peak if they are given proper dating, terms, and storage.
2. If management is considering acquiring new equipment or properties, a study should be made as to whether it is beneficial to lease or buy this property. The cost of leasing may be very high because generally the leasing company will, for example, on 30-year lease, expect to amortize its money over a 20-year period but will charge for 30-year money. This differential can be substantial and could mean a lot to a company in determining the over-all cost of such a program.
3. The accountant and controller should be constantly alert for those areas of the business in which, because of growth, manufacture may supplant purchasing or contracting, in whole or in part. This is the old "make-or-buy" decision. This kind of thinking will take finance companies into the insurance business, it will take banks into the

finance business, and can result in the manufacture of products now being purchased, and thus eliminate middleman's costs.

4. Similarly, on the question of transportation costs, the areas for probing by the accountant can be very worthwhile. Certainly the costs of owning or leasing trucks in comparison with the costs of using common carriers should be investigated. Many companies may find they can profitably take advantage of doing their own hauling.
5. Incoming orders should be analyzed by size. In practically any business, a very large percentage of the clerical work is spent on a very small percentage of sales. This is even true in the loan department of a bank where a large part of the clerical work is spent on very small loans which are relatively unprofitable. This kind of analysis can lead to establishing charges for orders, giving customers inducements to increase the size of their orders, or a sustained effort to cut clerical costs. All of this pays off.

Segregating Processing and Analysis Functions

Thus, there are many opportunities for accountants and controllers to contribute to their company's profits: (1) by a thorough examination of the effect of inflation on the business, (2) by attempting to put the return-of-investment approach to work in the company, (3) by using new techniques of inventory management, and (4) by setting us a series of analytical approaches to various segments of business.

One may say, "Well, all this is fine, but how can I get it accomplished?" Perhaps the real method of accomplishing much of this work is by reorganizing the typical financial or controller's department so that it has the people to do the job. Today's controllers should really divide their departments into two areas. One could be called the processing department and the other the analysis or control group. The processing department would handle the day-to-day accounting details. In the analysis group, you need people responsible for critical analysis of areas for improving profits. These individuals will not be burdened by the problems of day-to-day accounting matters. By dividing the work between processing and analysis, the accountant will be able to develop the type of information that will make a real contribution to management and he will gain prestige. Creative accounting can really pay its way. If you have not tried it, you should do so.

A Proposal for Dual Pricing of Intra-Company Transfers

by ALLAN R. DREBIN

IN A SMALL WESTERN TOWN recently two outlaws had committed a nearly perfect crime. People suspected them of doing it, but there just was not any evidence on which to convict them. The quick thinking sheriff placed them in separate rooms and made each the same proposition, "If you confess I will give you $1,000 reward and fine your partner $2,000. However, if you both confess, I'll fine you each $1,000." Each individual properly reasoned that he would be better off confessing, regardless of what his partner did. However, it can be seen that both would have been better off if neither had confessed.

A similar dilemma has been plaguing officials of large corporations and can partly be explained by a naive generalization of the old Euclidian axiom that the whole must equal the sum of its parts. They have allowed the geometric truism to influence their reasoning with regard to the decentralized firm and have come up with a corollary hypothesis that the maximum profits to the firm will automatically be obtained by maximizing profits of each division separately. Under certain conditions this will happen but, at the present time, these conditions do not exist in practice.

Some firms have been circumventing the problem by methods which lessen the autonomy of the divisions and frustrate the objectives of decentralization. They are trying to get a "confession" out of both their buying and selling divisions. Nevertheless, division leaders of integrated firms trying to maximize their own division's profits, can be led to make decisions which would maximize profits of the firm as a whole.

The matter is important. Today's industrial processes are complex and require large amounts of capital. This naturally results in very large efficiencies of specialization but it is necessary to sacrifice mobility. The single enterpreneur can make all the decisions necessary to operate his small business, but no one man is capable of making all the decisions required of a large corporation. To help the big business

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carry on these functions, a hierarchy of management has been set up in which the higher executives set policies and criteria which their subordinates use to make the multiplicity of decisions for themselves.

Most firms have cost centers which attach responsibilities for various costs to specific individuals. This gives the individuals incentive for taking actions which will result in lower costs. However, the point at which a firm's costs are lowest does not usually coincide with the most profitable scale of operations, as revenues must also be considered. The need for attaching responsibility to both phases of operation results in the establishment of profit centers. It is currently believed that, by giving the head of the profit center an incentive for maximizing profits of his own division by some arrangement such as executive bonuses, the firm will make maximum profits.

The Dilemma

The weakness in the plan is that the interests of the separate groups conflict whenever they come into contact with each other commercially. The buying division naturally wants to pay the lowest possible price for its materials, whereas the selling division wants to receive a high price. These disputes are usually settled by a company-wide arbitrations board which helps the two divisions arrive at a compromise price with which neither is usually satisfied but which will, nevertheless, cause intra-company transactions to occur. The price is looked upon merely as a device for determining the bonuses, for the arbitration board will see to it that the divisions purchase from one another (if that is economically desirable). But if this is the case, why give bonuses at all, since neither of the profit-center managers made the decision which was ultimately most advantageous to the firm? The autonomy is gone and the separate profits are not a measure of each division's respective contribution to the firm's income but rather an indication of how much Division A can out-haggle Division B.

The optimum advantage of decentralization can be obtained only if the divisions are completely separate and free to deal within or outside the company as they see fit. However, here the conflict again arises. If one division buys its materials outside the company, there is the possibility that another division which ordinarily would supply this material will be left with idle capacity. Although the division's decision to buy outside was sound with regard to its own profit structure, it obviously did not have the entire firm in mind when it considered the purchase. Arbitration is not helpful here, since the selling division is at a relative disadvantage due to its dependent position.

Methods of Determining Transfer Prices

In such cases, a good method for pricing intra-company transfers will enable both divisions to maintain their autonomy and yet make decisions which benefit the whole firm. Such a method is lacking to date. Several different methods for determining a specific transfer price have been either suggested or used. The more popular methods are four in number and will be discussed briefly.

Competitive market price is probably the method which is most often used in practice. Market price is defined for the purpose as the price at which trading comparable to current interdivisional transactions would occur in the outside market. Of course, this method affords no real basis for any decision whatsoever for, if the prices were the same within and outside the company, the manager should be ambivalent as to the alternatives. If the groups were completely independent, he would not purchase from within the firm more than a reasonable portion of the time. However, this would be the case only if the products made by other divisions were completely identical to those supplied by other firms. In fact, the products are never completely alike, and product differentiation is something qualitative in nature and not measurable in dollars and cents. This calls for arbitration. As one firm puts it,

> "In order to keep interdivisional prices in line with the market, a pricing committee consisting of a representative each of the supplier and customer divisions meet weekly or oftener if necessary. If these two representatives cannot agree, a decision is made by a member of the central raw materials purchasing staff." (Accounting for Intra-Company Transfers, N.A.A. Research Series No. 30, page 26. N.A.A., June 1, 1956.)

Thus the divisions are not completely independent and it would seem as if decentralization was not effective.

Full cost is another method. There are several pricing methods using full cost of the supplying division as a basis for price. Most of these make some allowance for profit, either as a margin on sales or as a return on investment. The major objection to this method is that, at a time when the price thus determined is not low enough to induce the buying division to purchase the material, it might still pay the company as a whole to have its own division produce it, as long as the division is making some contribution to its fixed costs. The outside suppliers may be considering their marginal costs in setting their prices, so the supplying division would have to do the same in order to compete.

Marginal cost is the third alternative and it would seem as if it has many advantages over full cost as a basis for determining transfer prices. It is particularly adaptable to firms already using direct costing in their

accounting systems. By using prices arrived at in this manner, the buying division is automatically led to buy within or outside the company when it is in the company's interest to do so. Here, however, the supplying division must give up its independence for, if it were completely free to sell on the outside, the price could normally be expected to exceed marginal cost when production is near capacity, since most firms will recover fixed costs and make profits on balance, and the division could not rationally decide to sell within the company. It can also be noted that the efficiency of the selling unit cannot be measured when this system is used, since revenues will always be directly related to cost.

Sales is a fourth procedure for pricing transfers. Its logical basis is that a method under which the price of an intermediate product is normal profit to subsequent divisions will cause the selling division to sell to the buying division when it is in the best interests of the company to do so. This is not very practical with items which comprise a very small portion of the final article, such as spark plugs in an automobile but, in most instances, should be useful. Here the major drawback is that the buying division will always show just a "normal profit," and so there is not much incentive for profit maximization in that division.

A Proposal for Dual Pricing

The four major methods mentioned above all arrive at a single price for intra-company transfers. Probably, however, in order to have economically sound decisions, two different prices are necessary. The buying division should be charged marginal cost, while the selling division should be credited for selling price minus profits and cost to complete. In this way, the selling division will continue to expand output as long as its marginal costs are less than its marginal revenues (which because of the transfer price are also the firm's marginal revenues). This would be the same level of production arrived at by one trying to optimize the profits of the whole firm. Likewise, the buying division will continue to employ materials obtained from other divisions as long as their marginal cost (which because of the transfer price is also the firm's marginal cost) is less than the marginal revenue attributable to these factors and, of course, less than the price obtainable outside the company. This is the extent to which a person trying to maximize the firm's profits would hire resources.

Prices would be set by application of specific formulas to precise accounting data, rather than as a result of subjective arbitration. The division managers would not only be caused to make decisions which are best for the firm but would have more time to make them when relieved of their wasteful functions as arbitrators.

The main objection to having two

sets of prices for the same transaction is the difficulty in accounting which the system causes. In particular, the fact that the sum of departmental profits will usually exceed the profit from the entire operation (unless the prices should coincide) is apt to be confusing. However, the intra-company profits are eliminated on consolidated statements anyway. It is only for inter-departmental comparisons that the figures are meaningful. Here, however, is a major advantage of the plan.

It is true that the profit attaching to any one transaction will be more than the contribution which it makes to the firm's income. But the profit of the separate divisions will now be proportional to their *relative* contributions. By purchasing from within the firm rather than outside, a division has increased the firm's profits by saving money as much as if it had sold some goods at a profit. "A penny saved is a penny earned," and the executive who purchases goods economically should be given credit for his role in raising corporate profits as much as the head of the division on which credit rests for selling them at a "profit." By adding up all the divisional profits and allocating executive bonuses on the basis of the proportions thus determined, true recognition will be given to those who benefit the entire corporation. Perhaps divisional "goals" will have to be established at higher levels, but this problem should be handled without too much difficulty.

The Proposal in Substance

It has been shown that, in some cases, economically sound decisions depend on two separate sets of transfer prices, marginal cost for the buying division and final selling price, less cost to complete and fair return to subsequent divisions, for the selling division. I believe that the objectionable features of the plan are easily overcome and that most large firms would benefit from its adoption.

THE ANNUAL STATEMENTS ARE HERE AGAIN

by Ernest H. Ring*

THIS IS THE FINANCIAL accounting season and at least brief restatement of some of its basic principles is timely.

The chief purpose of all accounting in the financial and industrial world is to supply all persons interested in the particular business upon which the report is being submitted, with a concise but intelligent statement of the operations of the company for the period. There is no other means by which the owners and managers can be informed of the success or failure of the venture. The reports which most clearly picture the situation are most useful to management, and, hence, best serve this purpose. Obviously, therefore, the *utilitarian* viewpoint of accounting is probably more important than any of the others.

Another viewpoint which is of extreme importance is that of *consistency*. It is only in those cases in which the accounting has been on a consistent basis that a true comparison can be made of the operating results and of the financial status of the company as of a particular period with similar results of a previous period. The importance of consistency cannot be overemphasized and, in those cases in which circumstances require a departure from it, this must be clearly indicated.

Great emphasis must also be given to the *going-concern* concept of accounting. Obviously, accounting reports on a concern which expects to operate indefinitely must be based on going-concern values. The going-concern concept assumes that properties are "worth" the price paid for them and they are, therefore, carried at cost, less an allowance for depreciation or amortization during the period over which they have been owned.

The *materiality* concept is also important. The task of condensing all of the transactions of an active business into a comparatively few figures in a financial statement at the year end is indeed a difficult one. It is only the more important aspects of the business which should be reflected in such statements and the immaterial transactions must be ignored. Management seeks only to learn of the highlights because it needs only the highlights for guidance as to future operations.

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* Peat, Marwick, Mitchell & Co., Waterbury, Conn.

Putting Method and Speed Into Your Accounting and Closing

by WALTER R. DEE

AS HEAD OF THE FINANCIAL DIVISION, it is very disturbing to realize that your accounting system is not providing the service and reports for most effective management of the company. You may have noticed that top management is constantly questioning the composition and meaning of facts in the monthly financial statements and also that operating supervisors are not completely satisfed with present reports which they are receiving. You may further detect that clerical personnel are uncertain as to the distribution of charges into their proper ledger accounts. Something must be done and you are the one responsible for remedial action. It is important for you to develop a well-planned, step-by-step program with which to attack and satisfactorily solve the existing problems. The pattern for revising your accounting and financial reporting system must be logically created in order that a workable solution be obtained.

To present an example, a lumber company will be used. However, the pattern is easily adapted and useful, no matter what type of manufacturing or service is involved. The steps of this pattern are:

1. Analyze the products or service of the company.
2. Review the organization of the company.
3. Determine preliminary design of financial statements and reports.
4. Discuss preliminary design with management.
5. Design and review final statements and reports.
6. Design and code the chart of accounts.
7. Cross-reference the old accounts to new accounts.
8. Check new financial statements with revised chart of accounts.
9. Identify accounts with divisions and departments.
10. Write all methods of allocations and distributions.
11. Develop standard journal entries.

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12. Write explanation of accounts.
13. Prepare instructions for systems and procedural changes.
14. Review personnel and equipment requirements.
15. Develop conversion schedule and closing calendar.
16. Conduct orientation and education programs.
17. Maintain a follow-up program.

This article will take up these steps in the order given.

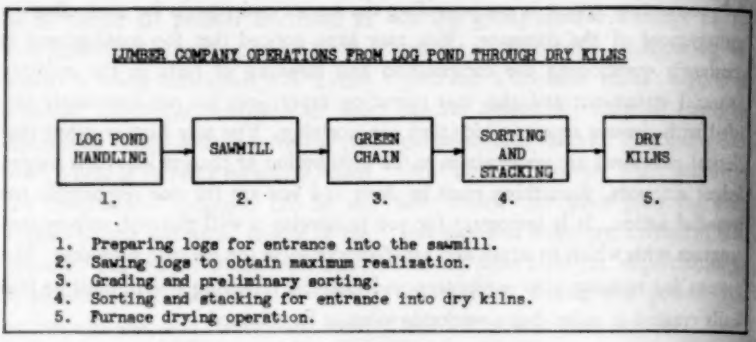

EXHIBIT 1

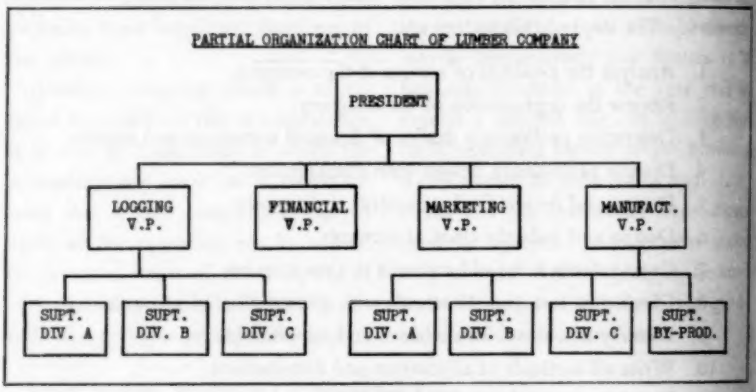

EXHIBIT 2

Products (or Service) and Organization of the Company

Accounting supervision must have a thorough familiarity with the product or service in order to evaluate the accounting systems and procedures. It is es-

tremely helpful to obtain or prepare flow charts reflecting the process from conception through final shipment. Thus, marketing, engineering, manufacturing, and service operations are clearly shown. In the lumber company, the basic material is the tree which flows through a series of logging operations to become a log. It then goes through another series of operations at the sawmill to become lumber. Finally, the lumber is further manufactured into wood products. Exhibit 1 sets forth a portion of the operational flow chart, showing the operations from the log pond through the dry kilns. Obviously, the understanding of the flow is a necessity in formulating many accounting decisions, such as number of labor accounts, number of cost centers, and the inventory reporting points. This same type of analysis was conducted of timberland, engineering and marketing operations for the lumber company.

Now that a complete familiarity with the product exists, it is necessary to review the organization in order to place responsibility for the various operations. Obtain or construct organization charts and review personnel responsibility. At this point, the financial head can evaluate the abilities of the accounting personnel relative to their assigned duties and responsibilities. Statement and report re-

LUMBER COMPANY

SUMMARY OF NET INCOME

FOR THE MONTH OF_____19__

Month			Year to Date	
Actual	Budget		Actual	Budget
$2,100,000	$2,000,000	Net Sales	$12,800,000	$12,000,000
		Operating Income:		
		Logging Divisions:		
2,000	-	Division A	2,000	-
3,000	-	Division B	6,000	-
(1,000)	-	Division C	(3,000)	-
4,000	-	Total Logging	5,000	-
		Lumber Divisions:		
95,000	100,000	Division A	580,000	600,000
48,000	45,000	Division B	295,000	270,000
36,000	35,000	Division C	235,000	210,000
179,000	180,000	Total Lumber	1,110,000	1,080,000
15,000	20,000	By-product Division	100,000	120,000
198,000	200,000	Total Operating Income	1,215,000	1,200,000
4,000	5,000	Other Income	40,000	30,000
6,000	5,000	Other Expense	35,000	30,000
196,000	200,000	Income before Taxes	1,220,000	1,200,000
98,000	100,000	Provision for Taxes	610,000	600,000
$ 98,000	$ 100,000	Net Income	$ 610,000	$ 600,000

EXHIBIT 3

quirements can be determined after the organization is clearly defined. A portion of the organization chart for the lumber company is shown in Exhibit 2. The chart shows that one logging vice president is responsible for three logging divisions and that one manufacturing vice president is responsible for three lumber manufacturing divisions and one by-product division. The completed chart would indicate all departments and department heads.

Design of Financial Statements and Reports

With full knowledge of the product and the organization, the next item is to evaluate the present financial reporting and accounting system and to design the type of statements and reports which will be of greatest value to all levels of management. Even though this is a preliminary design subject to discussion and change, it should be drawn in detail to enable sound interpretation and analysis. These are the statements and reports which you as head of the financial division believe that other members of management should receive.

In the lumber company, it was decided that top management should receive, among other statements, a summary of net income by area of responsibility as shown in Exhibit 3. In discussing this statement with top management, the financial head should stress such advantages as a quick view of the operations, matching income with a responsible individual, showing results of operations for each income producing area, and the feature of comparing actual results with budget. A major decision for this company was to transfer logs at a standard cost from logging to manufacturing. Thus, logging profits or losses can be measured in relation to standard, and manufacturing costs at the sawmill are not affected by fluctuations in logging costs.

With the preliminary design of statements and reports completed, the accounting head begins discussions with members of top management to determine if these statements and reports provide the information management desires and to obtain ideas regarding requirements. The reason for the preliminary work is, in fact, to show management something at this time. It is most difficult to discuss statement and report format and content without having an exhibit which can be analyzed. You will find that, in discussing certain reports, it would be advantageous for a vice president to have his management team members evaluate and express their opinions and requirements. In this way, the vice president will not only be aware of the statements he will receive but also of the reports which his supervisors will receive. In discussions with the manufacturing vice president in the lumber company, a detailed operating report of the dry kiln department, as shown in Exhibit 4, was proposed. The plant superintendents and

LUMBER COMPANY

OPERATING REPORT

DRY KILN DEPARTMENT

FOR THE MONTH OF_____19__

	Actual		Budget	
	Amount	Per M	Amount	Per M
Footage Dried - M Feet	8,500	-	8,000	-
Labor:				
Direct	$ 2,400	$ .28	$ 2,500	$ .31
Supervision	650	.08	650	.08
Repair	450	.05	350	.04
Other Indirect	100	.01	100	.01
Overtime Premium	350	.04	300	.04
Payroll Expense	240	.03	250	.03
Total Labor	4,190	.49	4,150	.51
Materials:				
Operating	560	.06	500	.06
Repair	220	.03	250	.03
Other	60	.01	65	.01
Total Material	840	.10	815	.10
Other Expense:				
Steam Power	4,100	.49	4,000	.50
Electric Power	2,100	.25	2,000	.25
Fixed Charges	500	.06	500	.06
Allocated Expenses	500	.06	500	.06
Total Other Expense	7,200	.86	7,000	.87
Total Department Expense	$ 12,230	$ 1.45	$ 11,965	$ 1.48

EXHIBIT 4

foremen were asked for comments. The report was accepted because it was short, concise, meaningful, and incorporated a comparison to budgets. (Fixed budgets are used presently by this company.) Reports are most understandable if expressed in the terminology used in the plant, such as the "M" information, shown in the exhibit.

After preliminary design is discussed with management, all statements and reports should be finalized. At this time, they should be in a form ready for printing. Obviously, the reproduction and binding methods should have been considered. The new statements and reports should be bound and then reviewed once more with responsible executives for final approval. In the lumber company, it was necessary to establish a report distribution method so that each level of management would receive a set of statements and reports applicable to its position and responsibility in the company. As a result, departmental foremen received detailed reports only, while top executives received financial statements containing sufficient information for successful planning and control at their level.

Design and Coding of the Chart of Accounts and Check to Statement

The design of the chart of accounts should reflect the operations of the company as expressed in the statement and reports which management requires. It should be constructed in a manner that allows for expedient statement preparation directly from account totals. All old accounts should be reviewed for meaning, activity, and possible consolidation or elimination. Based upon the new reporting format, new accounts may be added. In particular, it may be necessary to add control accounts to expedite monthly closing. The accounts in the general and expense ledgers should be worded to conform with generally accepted accounting terminology. Depending upon the size of the company, it may be possible to combine the general and expense ledgers. Coding the accounts becomes important. At this time, divisions and/or departments must also be coded. Adherence to numeric coding is preferred in view of either present or future possibility of ledgers or punched cards.

In the lumber company, the general and expense ledgers were revised. The old accounts were reviewed and new accounts developed. The old expense ledger was reduced from 150 to 78 accounts because many accounts duplicated one another. The accounts were then listed in an order which expedited statement preparation. Finally, a simple coding was developed which consisted of three-digits for general ledger accounts, a three-digit expense ledger code, two digits for divisions and two digits for departments. It was determined that this coding allowed sufficient room for expansion.

	CROSS REFERENCED CHART OF ACCOUNTS	
NEW ACCOUNT NUMBER	ACCOUNT DESCRIPTION	OLD ACCOUNT NUMBER
	CASH	
100	General Account - First National Bank	A-100-1
101	General Account - State National Bank	B-100-1
102	General Account - Bank and Trust Co.	C-100-1
103	Payroll Account - First National Bank	A-100-2
109	Petty Cash Funds	D-100, D-101
	MARKETABLE SECURITIES	
120	United States Government Bonds	D-105-1
	RECEIVABLES	
130	Accounts Receivable - Wholesale	E-110-1
131	Accounts Receivable - Retail	E-110-2
132	Sundry Accounts Receivable	E-110-3
137	Notes Receivable	F-110-1
139	Allowance for Doubtful Accounts	G-110-1

EXHIBIT 5

It must be realized that people have become accustomed to the old account numbers. Therefore, it is necessary to cross reference all the old account numbers to the new numbers. Division and department numbers will also require cross referencing. Exhibit 5 represents a portion of the cross referenced general ledger accounts for the lumber company. The accounts are in order as they would be drawn off for balance sheet preparation. Anyone can immediately see that new account No. 109 replaces the old account Nos. D-100 and D-101 for the petty cash account. For this company, all asset accounts are coded in the 100 series. A further breakdown restricts the various asset accounts by category. Thus, receivables are included in the 130 series, while fixed assets may be in the 170 series.

LUMBER COMPANY

SPREAD SHEET

ACCOUNT, DIVISION, AND DEPARTMENT CODING

DRY KILN DEPARTMENT - DEPT. NO. 08

Account Number	Account Description	Division A No. 01	Division B No. 02	Division C No. 03
001	Direct Labor	01-08-001	02-08-001	03-08-001
002	Supervision Labor	01-08-002	02-08-002	03-08-002
006	Repair Labor	01-08-006	02-08-006	03-08-006
009	Trucking Labor	-	-	03-08-009
035	Repair Material	01-08-035	02-08-035	03-08-035
049	Other Material	01-08-049	02-08-049	03-08-049
151	Steam Power	01-08-151	02-08-151	03-08-151
152	Electric Power	01-08-152	02-08-152	03-08-152
250	Fixed Charges	01-08-250	02-08-250	03-08-250
375	Allocated Expense	01-08-375	02-08-375	03-08-375

EXHIBIT 6

In order to check against the work you have done to this point, analyze statement flow to make certain that figures in each statement can be traced. Then take each statement and insert account numbers next to the applicable description line on the statements. Simultaneously, check off the account in the ledger as being used. Do not be surprised to discover items on your statements that have no account number provided. You may find that accounts have not been put in the proper sequence for fast statement preparation. You may also find that you have created accounts which do not appear in any statement. This statement and account check proved invaluable in the lumber company in arriving at proper statements and applicable accounts in the sequence that was required.

Identifying Accounts With Divisions and Departments

If more than one division is involved, you will find that personnel in each divison are interested in the accounts and coding which they are to use. Therefore, it is necessary to list each account with its assigned code for each division. In the same manner, the departmental expense accounts must be identified and coded. Each division and department is then provided with the accounts and codes which they are to use. Thus, if the general cash account applies only to the home office, none of the divisions would see it in their list of accounts.

For the lumber company, a spread sheet was prepared listing every account and the divisions across the top. Then, for each account, a decision was made as to which division used the account. Wherever an account was used, it was coded under that division. Finally, a listing was prepared from the spread sheet for each division, reflecting the active accounts to be used by the division. Exhibit 6 shows the departmental listing spread sheet prepared for the dry kiln department. Division A knows that its division code is 01, that the department coding is 08 and the total code for each account includes the division number, department number and account number. The spread sheet indicates the accounts and coding which this division is to use.

Allocations and Distributions; Standard Entries and Explanations

In the development of the revised accounting system, you may have changed some of the previous allocation and distribution bases. In any event, you should write an explanation of every allocation and distribution in order that everybody will follow the same method in distributing or allocating the various expenses. In the lumber company, descriptions were written for distributable expenses, such as administrative, selling, timberland, steam, maintenance, factory overhead, and others. These were written on standard practice bulletins and incorporated into the company manual of operations. Exhibit 7 shows the distribution written for timberland expense. In addition to these explanations, all accrual and fixed charge registers were prepared in advance.

You must decide upon the standard journal entry form. Possibly your present one is suitable. Remember that these should be pre-printed, including all fixed information, to reduce clerical effort in preparing entries. The form should contain space for entry indentification, source information, and spaces for signature and date of responsible individuals who prepare, approve, and post the entry.

The standard entries can best be developed by taking advantage of the chart of accounts. Prepare a spread sheet listing every account and its code in the

LUMBER COMPANY

STANDARD PRACTICES: Accounting Manual — PRACTICE NO.: 225

SUBJECT: Timberland Distribution — DATE:

APPROVED BY:

PURPOSE: The purpose of this practice is to describe the procedure for accumulating and distributing timberland expenses.

PROCEDURE: All timberland expenses will be accumulated monthly in the Timberland Control Account #701 in the General Ledger.

At month-end a fixed predetermined amount based on budgets will be charged to each of the three logging divisions. Account #701 will be credited and the Timberland Expense Allocated, #702 will be charged for each logging division. The charged amount will appear directly on the Net Income Statement of each logging division.

The amount not absorbed during the month will be suspended in the control account for the month as a deferred item. The suspensed amount will be included in the charge the following month and the distribution of this suspensed amount will follow the fixed predetermined percent. Thus, the Timberland Control Account #701 is progressively corrected each month.

EXAMPLE:

First Month:		
Budgeted Timberland Expenses	-	$ 5,000
Actual Timberland Expense	-	5,200
Distributed per budget to:		
Logging Division A	-	2,000
Logging Division B	-	1,500
Logging Division C	-	1,500
Suspensed Amount	-	200
Second Month:		
Budgeted Timberland Expenses	-	$ 5,000
Actual Timberland Expense	-	5,300
Distribution per budget plus suspensed amount:		
Logging Division A	-	2,080
Logging Division B	-	2,060
Logging Division C	-	2,060
Suspensed Amount	-	300

EXHIBIT 7

general ledger. Draw two columns indicating debits and credits under a standard journal entry heading (Exhibit 8). The next step is to decide what standard Journal Entry No. 1 will be. Suppose you decide that this entry will be cash receipts. You inspect the accounts and pick up every account which receives a debit in this entry. You list these credit accounts in the entry and indicate a number "1" in the credit column of each affected account. You have completed the account identification for Entry No. 1. On the standard journal entry work-

sheet, you explain the entry, identify its source or sources, and give it its standard number. You may decide next that Standard Journal Entry No. 2 will be cash disbursements. You follow the identical procedure for this and all other standard entries.

When all standard journal entries are completed, you inspect the spread sheet to assure yourself that every account is covered by a standard journal entry. Accounts not included in standard entries must be analyzed to determine why they exist and how they are to flow into the books of entry. After all entries are developed and reviewed, the next step is to prepare a Standard Journal Entry Schedule, as shown in Exhibit 9. This schedule assigns responsibility and timing for each entry. It will also be used as a progress guide for each monthly closing. Obviously, the scheduled time for completion of each entry will depend upon the closing schedule for the company.

Exhibits 8 and 9 reflect some of the work which went into the development of standard journal entries for the lumber company.

PARTIAL CHART OF ACCOUNTS INDICATING
ASSIGNED STANDARD JOURNAL ENTRIES BY ACCOUNT

ACCOUNT NUMBER	ACCOUNT DESCRIPTION	STANDARD JOURNAL ENTRY	
		DEBIT	CREDIT
100	General Account - First National Bank	1	2
101	General Account - State National Bank	1	2
102	General Account - Bank and Trust Co.	1	2
103	Payroll Account - First National Bank	1	2
109	Petty Cash Funds	2	1
120	United States Government Bonds	2	1
130	Accounts Receivable - Wholesale	5	1 & 15
131	Accounts Receivable - Retail	5	1 & 15
132	Sundry Accounts Receivable	2 & 4	1 & 3 & 15
137	Notes Receivable	7	1 & 15
139	Allowance for Doubtful Accounts	15	16

EXHIBIT 8

LUMBER COMPANY

STANDARD JOURNAL ENTRY SCHEDULE Month_____19__

ENTRY NO.	ENTRY DESCRIPTION	RESPONSIBLE FOR PREPARATION	PREP. SCHEDULE		ACTUAL	
			WORK DAY	TIME	WORK DAY	TIME
1	Cash Receipts	J. Brown	3	2 PM	3	1 PM
2	Cash Disbursements	A. Smith	3	1 PM	3	2 PM
3	Payroll	B. Cole	4	2:30 PM	4	1:30 PM
4	Accounts Payable	D. Olds	2	4:30 PM	3	9:30 AM
5	Depreciation	N. Black	1	9 AM	1	9 AM

EXHIBIT 9

Each general ledger and expense ledger account must be explained in detail in order that personnel using the accounts will be aware of the appropriate charges and credits to the accounts. Furthermore, the distribution basis of each expense account must be described. If you assume that a new accounting clerk may be hired next week and must quickly become familiar with the accounts and their meaning, you will realize the significance of these explanations. Standardization will also be achieved, in that everybody will be using the accounts in the same way, based upon your explanation. The explanations are simple to write because you already have the account placement in statements, the journal entries completed, and the source information indicated on the journal entries.

For the lumber company, two forms for explanation of accounts were used. The first form, for general ledger accounts, contained the debit explanation and debit sources and also credit explanation with credit sources. The second form, for expense ledger accounts, contained charge (or credit) explanation, source information, and distribution basis of the account. Exhibit 10 shows an explanation of the supervision labor account in the expense ledger.

LUMBER COMPANY		
STANDARD PRACTICE:	Accounting Manual	PRACTICE NO.: 318
SUBJECT:	Explanation of Accounts Account #002 - Supervision Labor	DATE: APPROVED BY:
CHARGE:	With the salaries and wages paid to persons who act in the capacity of supervisors or assistant supervisors in office or plant departments. A departmental listing attached designates supervisors assigned to departments. Non-salaried people who act as supervisors will charge their time to this account and their respective department.	
SOURCE:	Office Payroll Register Hourly Payroll Recap Standard Journal Entry #3	
DISTRIBUTION BASIS:	Based on departmental listing attached assigning supervisors to departments. Based on time reported by hourly persons acting in supervisory capacities.	

EXHIBIT 10

Procedural Changes; Personnel and Equipment

Revising the financial reporting and accounting system normally involves changes in certain systems and procedures. You are thus required to revise

present standard practices or prepare new ones describing systems and procedures under the revised system. Most of the changes will be in areas affected by the revised coding such as labor reporting, purchasing, material requisitioning and warehousing. At this point, procedures and forms should be developed for all worksheets which are required under the revised methods. For the lumber company, instructions were written for those systems and procedures which required revision and these instructions were incorporated into the company manual.

Certainly, in this entire program, much thought has been given to the number and type of people required and to the most appropriate equipment to be utilized. These areas should be reviewed thoroughly at this point. You may find that present personnel and equipment are suitable under the revised system. In the lumber company, the existing tabulating installation sufficed for the revised accounting needs. Due to reassignment of duties and the transfer of payables to tabulating, it was possible to reduce the accounting personnel by two people.

Conversion Schedule; Closing Calendar; Orientation

Certain planning is now in order as regards the chronological sequence of the conversion to the new system, as well as that of the normal periodic closings. Let us see what was done relative to converting and closing at the lumber company. The revised accounting system went into effect at the middle of the fiscal year. The following steps were incorporated into the conversion schedule:

1. Formal notice of change-over as of July 1.
2. Issuance of all information relative to the change, such as chart of accounts, statement and report format, explanation of accounts, standard journal entries, systems and procedural changes, and worksheets.
3. Schedule of June closing under the existing system.
4. Schedule of statement and report issuance under the existing system.
5. Schedule of transfer of amounts from existing accounts to new accounts.
6. Up-dating the year-to-date figures as they would appear in the new statements.
7. Revision of budget figures wherever necessary.
8. Reassignment of the duties of personnel for day-to-day activities and also closing activities.

In the preparation of the closing schedule, it was necessary to schedule the tabulating department and the remaining office functions in detail. Deadlines were established in terms of work days and specific times. The various machines in the tabulating department were scheduled to meet the deadlines. It was determined that a manual function could be performed in time to meet these. The standard journal entry schedule was reviewed and approved. Finally, a summary closing schedule was developed for use by the financial head. This schedule, a portion of which appears in Exhibit 11, provided him with a progress check of closing for each month.

LUMBER COMPANY

MONTHLY CLOSING SCHEDULE — Month

APPLICATION	DEPARTMENT RESPONSIBLE	COMPLETION SCHEDULE WORK DATE AND HOUR	
		SCHEDULED	ACTUAL
Voucher Register	Tabulating	2 - 11:00	
Payroll and Distribution	Tabulating	2 - 3:00	
Invoices	Tabulating	3 - 10:00	
Sales Register	Tabulating	3 - 11:00	
Shipments	Tabulating	3 - 3:00	
Cash	Accounting	3 - 4:00	
Warehouse Issues	Tabulating	4 - 4:00	
Work Orders	Tabulating	5 - 3:00	
Complete all Journal Entries	Accounting	6 - 2:00	
Key Punch all Journal Entries	Tabulating	7 - 10:00	
Trial Balance	Tabulating	7 - 3:00	
Issue Profit and Loss, and Balance Sheet	Accounting	8 - 11:00	
Issue Other Financial Statements	Accounting	9 - 3:00	
Issue Departmental Reports	Tabulating	9 - 4:00	

EXHIBIT 11

A sizeable package has been put together. Although *you* understand it, everyone in the organization must be thoroughly oriented and educated in the operation of the revised system. Classroom instructions provide the most effective method of education. A complete company manual defines the system and provides the means for adherence to established practices. At the lumber company the planned instructions were given to the following groups:

1. Top executives.
2. Office management.
3. Superintendents and foremen.
4. Accounting personnel.
5. Shop and field clerks.

Maintain a Follow-Up Program

Once the revised system is in operation, a constant follow-up program must

be maintained. This program includes a check on the proposed operations and investigations for improvement of the developed system. At the end of a year's operation, a complete review of the accounts will disclose the need for, and usage of, the established accounts. Personal reward of your efforts will be obtained with the expressed satisfaction of all people who benefit from your efforts. The basic results of the revisions as experienced by the lumber company were enthusiastic response to the financial statements, simplification of the accounting procedures, and pronounced acceleration of the monthly closings.

How Accountants Can Help Management Manage

by J. E. TRAINER

THE DIFFERENCE BETWEEN an informed and an uninformed management is often the difference between profit and loss. The value of the accountant in this endeavor has come to me many times through personal experience in my business career. I have seen men in management who sought to be informed and were unable to find accountants of a calibre to provide proper information. I have also seen top-notch, information-laden, uncommunicative accountant-executives who were unable to "get through" to certain members of management. Thus, the observations to be made in this article about the accountant-executive come in large measure from my own experience.

I think we should first reach some sort of an understanding as to what we mean by the term "management." It is a broad term which includes lots of people who are responsible for and who are directing the work of other people at all levels in the operation of a business enterprise. Management includes, certainly, the directors and officers of a corporation. It also includes the chief engineers, the plant superintendents, the department managers, the supervisors and the foremen in a modern manufacturing company. Furthermore, there are many different kinds of activities in our modern plant which require the services of managers. Some of the important ones are in the fields of engineering, purchasing, finance, sales, and research and development and, needless to say, production. Therefore, in referring to the ways in which accountants can help management, I am thinking of those people who manage lots of different kinds of activities, and at all levels, from the foreman in the shop up through the major executives of our modern business.

Information—Promptly, Clearly, Emphatically

Exactly how can accountants be most helpful to their companies? What can they do—and when should they do it—to assist management in running the company? How can they best employ their knowledge of the company and their skill as accountants, and make the most of their oppor-

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JAMES E. TRAINER is Executive Vice President, The Firestone Tire & Rubber Company. He joined this company in 1939 as Production Manager in charge of all company plants, and since then he progressively advanced to his present position.

tunity to keep management properly informed? Here are some of the things which I think must be seriously considered.

The day when business could be run by hunches—by "the seat of the pants" —if that day ever existed, is gone. Efficient management means informed management—and the accountant is certainly an important man when it comes to the problem of keeping management informed.

Management must be told promptly about the things that have happened. Stale figures are not only useless but are actually a liability, because we may give them our time and attention when we should be concerning ourselves with what is happening today. I am sure it is generally realized that the preparation of accounting reports is not in itself a goal. Instead, accounting reports serve as most valuable and useful tools in the hands of enlightened management—and guide management toward the decisions which must be made every day in running a business. However, it is not very helpful to a factory foreman to tell him what happened two or three weeks ago. He must know what happened yesterday and what happened last week, in order to decide whether some corrective action is called for.

A little in the way of accuracy might well be sacrificed in order to get reports in the hands of management more promptly, because a prompt report with a small degree of inaccuracy is certainly more helpful than a late report which is accurate to the last penny. It is better to show a patient's fever at 101 degrees while he is alive and something can be done about it, rather than being accurate to the point of reporting that "Joe Smith's temperature last night was exactly 103.4785 degrees when he died." The too accurate reporting of Mr. Smith's fever did not help the patient at all!

Another very important point is the form and the language of statements and reports. Keep them simple. Avoid the use of long and multi-column statements which cannot be read without the aid of a ruler as a guide. Use language which will be understood by the reader of the report, whether he be a factory foreman or a plant superintendent. Avoid what I might call "accounting terminology." If you want to tell a department manager that he used too much material to make the finished product, tell him that, don't call it "material usage variance" or "invisible loss." Always keep in mind the fact that those who use your reports, in many cases, do not have your accounting training and background. Talk to these people in words and phrases which they will readily understand. All of us have fallen into business jargons—the legal jargon, the production jargon, the labor relations jargon, the advertising jargon and others. But we have to forget jargons when we are dealing with people outside our immediate fields.

It has been said that brevity is the soul of wit. Brevity is also the soul of real, live, useful financial reports. You must keep in mind that reports should be brief and should highlight the important points you wish to make; so you should not clutter them with unimportant details.

Some thought may well be given to various ways in which to present the story. Charts and graphs are very useful and often provide the means by which to show at a glance the important trends which are taking place in the company. Trend data are extremely helpful because they point out the direction in which we are going and it is often difficult to get the picture by comparing many sets of figures. If you are now using charts and graphs, you may find that their use can be extended. I might suggest that new chart-making techniques have been developed—such as those used in *U. S. News & World Report* (called pictograms). These might well be studied and considered. I know a fellow who, when he became president of an $800,000,000-a-year company, had one chart, and one only, made for him: a source-and-application-of-funds chart for the period 1947-56. With that one chart alone he sold his board on his ideas for improvements and acquisitions, he charted his future course, and made many decisions. That is how important a chart can be.

"Get Out and Get Under"

Some accountants may consider that their job is simply one of telling management of the things that have happened. However, it is as important a part of the job to "sell" as to "tell." Reports must be designed so they will be understandable and the accountant must be prepared to explain and interpret them by written communications and in meetings with other management personnel. Many people believe that the man who sells the finished product to the customer is the only one who needs to do a selling job. This is not true. It is equally important that engineers, plant superintendents, research people and accountants be proficient in selling and explaining ideas to their business associates. The accountant's intimate knowledge of the company is of little use to its management if he cannot convey that knowledge to someone who can use it.

Next I would like to suggest that accountants maintain a continuing knowledge of what is actually going on in their companies' plants—and no one can have such a knowledge who spends all of his time in his office or at his desk. One of the best ways to find out about factory costs is to get out into the factory. Observe what is going on, talk to the people who are running the factory, and you will quite likely find the answers you seek. By doing this you will perform a real service to the men who are running

the factory and are responsible for the cost of operation.

Areas In Which Information Is Most Needed

Now let us examine the kinds of things which management needs to know and which the accountant can so well provide. The management of a company or an individual department in a plant needs to know rather promptly where it stands. Management wants to know, for example, the amount of its investment in inventory and the factory foreman must know in the same way the size of the inventory in his department. He must be sure at all times that he has a sufficient supply of all the parts and the raw materials which are required to operate the department efficiently and without incurring excess cost. At the same time, he cannot carry unduly high inventories because this ties up too much money and increases the risk of loss from obsolescence. Accountants are all more than familiar with the balance sheets or statements of financial condition which many companies publish and issue to their stockholders. These are useful statements, but the management of the company must know considerably more about its condition than can be learned from such published statements. This means that each such statement must be broken down according to the responsibilities of various managers.

In addition to knowing where we stand, we must know how we got there, and this gets into the broad subject of all kinds of operating reports. We must know what it costs to make and to sell our products, and how much we receive from them, for the difference is profit and that is certainly an important subject. We must know the areas in which management can operate to improve efficiency—to minimize waste and reduce cost so that we can deliver our products to the consumers at a fair price and, at the same time, earn a fair profit on the investment of our stockholders. Accountants are extremely helpful when they are able to study and analyze the operating statements and point out to the management of a company the things which might require attention and correction.

Management must know the relationship of profit on a given product to the investment required to make that profit and the accountant should be in a position to provide this information. I think I am safe in saying that no company has an unlimited supply of capital to invest and that a choice often must be made between several proposals for investment of available funds. The matter of the relative profitability of such proposals is certainly of prime importance and it is the accountant's job to present this information clearly when it is needed.

It is certainly not enough to know where we are and how we got there;

the management of a well-run company must also know where it is going and what the future holds for that company. You may say that this is the job of the economist or the professional forecaster but it is the accountant's job, too. We all talk a great deal about standard costs, which are really nothing more than some very sound ideas as to what we expect it will cost to make a product. This same approach can be, and should be, extended to budgeting or forecasting the complete operating statements of a company so that its management can have some very definite ideas as to what is ahead.

In this area accountants can be at their creative best. This is the place where an accountant can demonstrate his ability for analysis and imagination, and where he can show whether or not he deserves to move up higher in management. This phase of accounting is somewhat removed from the ordinary routine of recording and analyzing transactions. It is, however, a most important job which must be done, and the accountant by virtue of his training and experience is well qualified to do it. If you are not now engaged in this sort of activity in your company, I suggest that you give it some serious thought, because I believe you can be of great help to your management if you can develop ways and means of forecasting results in the future.

Accountants In Top Management

Accountants have a high respect for fact finding and for accuracy. They are analytical. They have a splendid opportunity to observe all phases of the operations of their companies and they follow in the accounting tradition of some of our outstanding industrial leaders who have built their careers on a base of early accounting training. Some of these men are:

Ernest Breech,
Chairman of the Board,
Ford Motor Company

Frederic G. Donner
Chairman of the Board,
General Motors Corporation

Charles Cox,
President,
Kennecott Copper Corporation

Stanley C. Allyn,
Chairman,
National Cash Register Company

Charles R. Hook,
Chairman,
Armco Steel Corporation

W. Alton Jones,
Chairman,
Cities Service Company

Roger M. Blough,
Chairman,
United States Steel Corporation

C. R. Smith,
President and Director,
American Airlines, Inc.

Accountants are important members of management. They are not just a couple of guys named Joe who sit in the corner on high stools and "keep the books." Accountants have a seri-

ous responsibility to keep management aware of the *current* status of the patient—with up-to-the-minute data, intelligently and clearly presented, and forcefully sold. Accountants can be *creative* members of management and can contribute to the profitability of an enterprise if they see their roles as transcending the mere custody of yesterday's results. It is good to know that we won yesterday's game and what the complete box score is, but it is tomorrow's game that counts even more. And accountants can be important factors in how tomorrow's ball game comes out.

ARE YOU BREAKING EVEN ON YOUR REPORTS?

(*Continud from page* 42)

next issue is received? An informal phone call to each secretary might provide some interesting answers.

2. How often are inquiries received relative to the data presented in a report? If the accountant knows from experience that certain data is of critical nature and should be very meaningful to management, then a lack of response may indicate management's inability to absorb the present volume of reports received. The saturation point has been reached.

3. What type of inquiries are received? If the inquiries received are of a nature which could have been answered by digesting the contents of the report, then something is wrong with the report. Perhaps the format is too complex or presents too much extraneous data. What highlights would the plant manager be interested in? A substitute report might be considered.

These are but a few of the many rules of thumb which might be used. However, this is an unending responsibility. The accountant cannot sit back after the last report is out and congratulate himself on his ability to meet the deadline; he must constantly re-examine the ultimate value of his efforts. He must stay above the break-even point.

Producing Production Standard Costs On a Computer

by VERNON H. BIRTHISEL

THIS ARTICLE DESCRIBES how one large company, using standard costs for its continuous process operation, is solving the problem of speeding up accounting information to be used by management, through the use of cost information developed on a computer.

Company Background and Operations Involved

Prior to 1955 our standard costs were calculated manually and the system as operated at all plants was based on composite cost standards. Although this method had been used many years for valuing production and inventory, explanation of manufacturing variances was, at best, a "broad-brush" approach. In January 1955, management approved the development of individual plant standard cost rates to be used in the development of standard production costs and the subsequent valuing of finished goods inventory. This was done through the use of conventional tabulating equipment which had been installed in each of our plants. The change was a considerable step and involved a great amount of co-ordination and a great amount of detail, and would not have been possible had we not had tabulating equipment. Even with this approach, all statistics and rate development were developed on a manual basis and merely punched into cards and calculated on an IBM 604 calculator.

This still left us with such considerable detail that it was necessary to start the job in early spring for completion in November, at which time we put the new rates into effect. In the fall of 1956, when we were again revising standards, we followed the same procedure up to card punching but, instead of calculating with a conventional calculator, we rented a computer, which reduced the calculation time from a matter of weeks to three days. Still such problems existed as a need for more accurate standards, the ability to explain variances and standards, and the ability to better value our inventories and revise standards quicker

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VERNON H. BIRTHISEL, Toledo Chapter, 1956 is with Kimble Glass Company, a subsidiary of Owens-Illinois Glass Company. Mr. Birthisel previously served as a Research Cost Analyst for Owens-Illinois Glass Container Division.

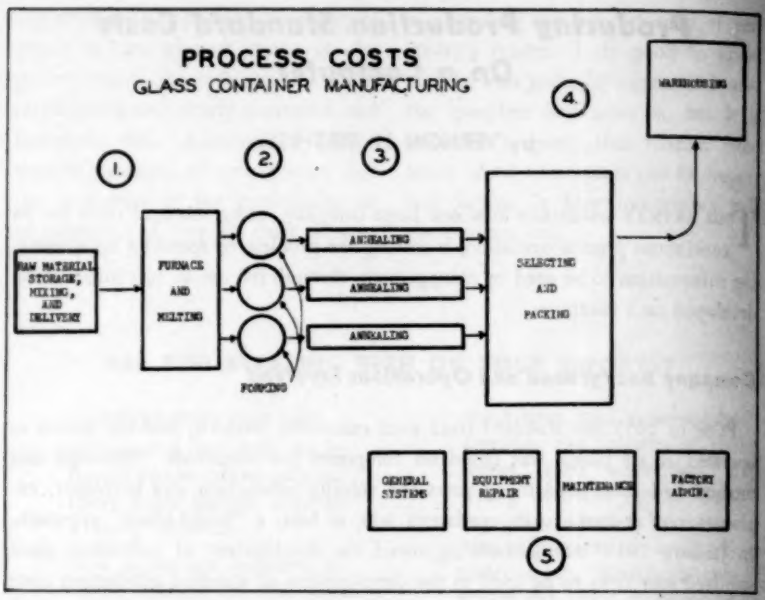

EXHIBIT 1

and closer to the date of our cost changes, both labor and material. These cost changes were showing up as variances.

During this period, our company management started a feasibility study on the installation of a computer. The study included evaluation of the economies which would result from cost rate development with the computer, in addition to making this process quicker and more accurate. The acquisition of an electronic computer in 1957 provided us with the facilities to obtain detailed breakdown of production cost virtually impossible under any manual system.

The continuous flow or process of materials through the plant operation, depicted in Exhibit 1, is roughly as follows:

1. Raw materials such as sand, soda ash, and limestone are mixed and the mixture delivered to the furnaces to be melted.
2. The molten glass is fed to the various machines, where the bottles are pressed or blown into the various sizes and shapes.
3. The ware is annealed or heat-treated for strength.
4. After cooling, the bottles are inspected, packaged, and warehoused, or shipped, depending on the schedule.

5. To facilitate this operation, each plant has various other departments, such as machine repair and mold repair, to service the manufacturing units, plus general factory administration departments and personnel, including a plant manager, an accounting department, a service department, a personnel department, and purchasing.

Development of Statistics and Rates

The steps taken to develop standard costs through the use of a computer for purposes of analysis, valuing finished goods and supplying management with current cost data are several in number. First, the statistics are developed from item run reports. The method used is to accumulate the various statistics, such as weight, set-up time required for each run of the particular items over a specified period of time. These are punched into cards and, at the time of standards revision, the various statistics are reduced to usage per item, weight per item, or any applicable unit. These figures, when developed, are the standard statistics for the various items and are considered valid until subsequent revision is ordered or desired.

As costs were already broken down into process centers for which a rate was developed that could be applied to some unit such as weight, units per hour, etc., to get the cost per unit for a step or part of the total cost of processing the finished goods, it was only necessary to break the rates into finer divisions for analysis in comparison with actual cost. By way of illustration, let us say that we manufacture various sizes, shapes and designs of units of the same material. There are various forming machines which produce these finished goods at different rates and capacities. Set out below are the various stages through which the unit must process to become a finished product.

Manufacturing centers	*Units of measure*
1. Raw material	Weight
2. Set-up cost	Time
3. Forming cost	Units per hour
4. Packaging cost	No. of pkgs/100
5. Warehousing cost	No. of pkgs/hour and space used
6. General	Re-loaded to centers above

Even though the rates were based on the various centers prior to this time, only the total cost, direct and fixed, was used to get the cost of production. As we might produce 10,000 items in a month, it was impossible to extend the various manufacturing centers manually for comparison purposes. The first step was to develop the rates so that they could be compared to actual cost, by center, with production extended by standard rates. The following breakdown

was made and a rate developed for each cost band, such as direct labor or material, etc.:

Mfg center	*Cost band*	*Direct Labor*	*Direct Mtl.*	*Fixed Labor*	*Fixed Mtl.*	*Exp. app.* Labor*	*Exp. app.* Mtl.*	*Depr.*
Raw material	01		X					
Set-up cost	02	X	X			X	X	
	03			X	X			X
Forming cost	04	X	X			X	X	
Pkg. cost	05	X	X			X	X	
	06			X	X			X
Storing	07	X	X			X	X	
	08			X	X			X
General	09			X	X			X

* Management approved expenditures covering unusual or major expense and repair items, as requested by individual plants, e.g., repairs to buildings or equipment. A five-year experience is used in developing standard allowances for this type of manufacturing expense.

The rates are then supplied to the tabulating department in a predetermined order and form such as shown below:

Cost-Raw Materials Band 01

Computer location	*Run*	*Rate*
1420	1	$1.0000

From this information the rates are punched into cards and, in turn, transferred into single instruction load cards for storage on the magnetic drum of the 650 computer. Any rate on a cost band is applied against a unit of measure for that cost band to develop the standard. For example, take Cost Band 01 Raw Materials, illustrated in Exhibit 2, where the unit is weight (in pounds). The rate for Cost Band 01 is stored in the 650, by factory, from the rate cards. As in-

MANUAL CALCULATION OF ITEM STANDARD COST BY COST BAND

Statistics

Direct Cost $X.XX
Fixed Cost .XXX
Total Cost $X.XX

Factory
Item No.
Kind
Forming Machine
Weight/Item .400

Set-Up Time

Calculation

Manufacturing Center	Cost Band	Units per Item	Direct Labor Rate	Direct Labor Std.	Direct Materials Rate	Direct Materials Std.	Fixed Labor Rate	Fixed Labor Std.	Fixed Materials Rate	Fixed Materials Std.	Expense Approvals Labor Rate	Expense Approvals Labor Std.	Expense Approvals Materials Rate	Expense Approvals Materials Std.	Depreciation Rate	Depreciation Std.
Raw Material	01	.400			1.0000	.400										
Set-Up Cost	02	Etc.	X	Cost	X	Cost					X	Cost	X	Cost		
	03	"					X	Cost	X	Cost					X	Cost
Forming Cost	04	"	X	"	X	"					X	"	X	"		
Package Cost	05	"	X	"	X	"					X	"	X	"		
	06	"					X	"	X	"					X	"
Storing	07	"	X	"	X	"					X	"	X	"		
	08	"					X	"	X	"					X	"
General	09	"					X	"	X	"					X	"
Total Expense Approvals	10			Total Cost		Total Cost										
Total Depreciation	11									Total Cost						

EXHIBIT 2

put cards are processed, this rate is applied against the weight and the result for Cost Band 01 is punched into a separate output card. In addition, the result must be added to all other costs to produce the total direct cost in separate output cards. This procedure is followed through the cost bands until all of the output cards are produced. Output cards have several cost band standard costs punched in each card. This is done for each cost band by item in the computer program, the finished product being standard cost by cost band by items manufactured. Any new items are run each month to keep the listing complete. The chart in Exhibit 3 explains the flow of the data processing operation.

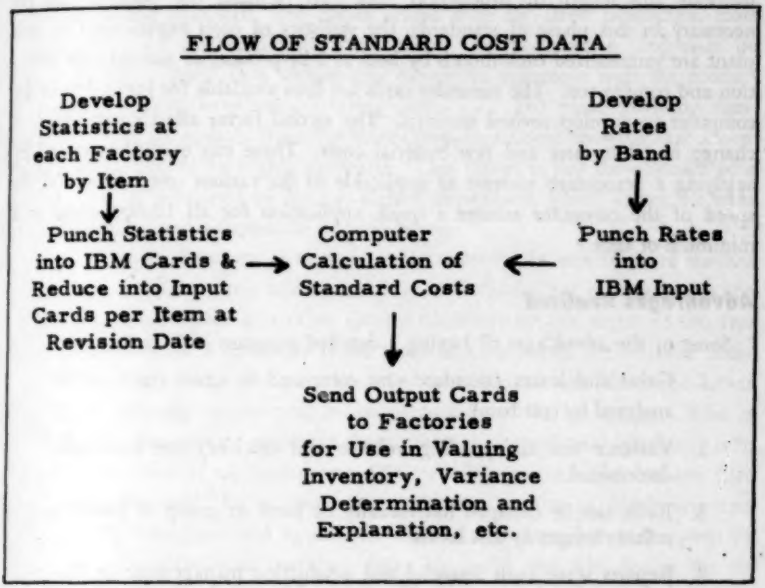
FLOW OF STANDARD COST DATA
Develop Statistics at each Factory by Item
Punch Statistics into IBM Cards & Reduce into Input Cards per Item at Revision Date
Computer Calculation of Standard Costs
Develop Rates by Band
Punch Rates into IBM Input
Send Output Cards to Factories for Use in Valuing Inventory, Variance Determination and Explanation, etc.

EXHIBIT 3

The nature of our manufacturing operations do not lend themselves to accumulating actual costs by item within each cost band in many of the processes. For example, one furnace may be supplying molten glass to as many as seven forming machines at the same time, with a different item being produced by each machine. However, it is practical to accumulate the total actual cost of each process for a period by cost bands. Applying the standard costs for each cost band in the process by the number of usable pieces of each item produced, we arrive at a standard or allowable amount for each cost in the cost band. The standard for the cost band for the period can then be compared with the actual

and the cost variance identified. Where it was formerly possible for us only to know how the entire process measured up to a standard, we are now able to break the process down into the various aspects of the different cost bands and thus make our standard costs a much more valuable tool in controlling costs and exploring variances.

While any properly set standard or yardstick has a real value, the standard cost system is at its best when the standard established reflects a realistic or attainable goal. Two basic factors of standards do change from time to time. First, the basic statistics will change due to more efficient equipment and methods and length of production runs. To facilitate the periodic changes necessary in this phase of standards, the statistics of costs experienced in each plant are summarized each month by item as a by-product of normal cost collection and comparison. The summary cards are then available for input data in the computer to develop revised statistics. The second factor affecting standards is change in labor rates and raw material costs. These can easily be revised by applying a percentage increase as applicable to the various cost bands, and the speed of the computer assures a quick application for all 10,000 items in a minimum of time.

Advantages Realized

Some of the advantages of having a detailed program such as this are:

1. Gains and losses (standard cost compared to actual cost) can be analyzed by cost band.
2. Variance due to spending volume and efficiency can be readily determined.
3. Rates can be changed individually by band or group of bands to reflect changes in cost levels.
4. Reports serve both financial and production management in that:
   a. Large manufacturing gains and losses are explained each month.
   b. Areas of production are "price-tagged" by comparison of cost at actual by item to standard cost at the predetermined efficiencies expected.

In short, we are just beginning to use the information available and are striving to place more work on the basic program. Profit analysis by item, types of items, plant profits and forecasting are fast beoming a by-product of the program outlined, all of which are designed to supply management within financial or production areas with pertinent cost information which is accurate, current and adequate.

Let's Stamp Out Bootleg Figures

by JOHN N. MERRILL

THE ACCOUNTANT ANSWERS HIS PHONE and finds the president of the corporation on the line. "I just received your unit cost report," sputters the president angrily. "Why does it show the cost of tankets at fifty cents? The boys in production told me at lunch yesterday that it only costs them twenty cents to make a tanket." . . . The controller attends a top level meeting in which selling prices are being discussed. He comes armed with the latest production costs developed by his cost accounting department. As the meeting progresses he suddenly finds himself in a violent and dangerous argument with the production superintendent over manufacturing costs. . . . The plant planning committee receives an analysis from the accounting department showing that a new plant location would be highly profitable. This report is just the opposite of a similar analysis submitted by the production department which shows the costs of the proposed new operation to be prohibitive.

None of these situations is new to the accountant. In one form or another he has run into them again and again. It is unfortunate, but rare indeed is the company in which these and other similar situations do not occur all too frequently. Even more unfortunate is the fact that nine out of ten of these situations need never arise. And, further, the same number can be traced either directly or indirectly to one man in the organization—the bootlegger. Who is this man who persistently sabotages the accountant's reports and needlessly take up countless hours of top management's time? Every accountant has met him and knows him well. He is simply the man who persists in developing and compiling his own facts and figures, the man who prepares his own reports of costs, sales, and other vital operating data. He is the man who spurns the accountant's reports in favor of his own. He is the man who comes up with "back-alley" figures and uses them without license. He is the figure bootlegger.

The Causes of Figure Bootlegging

This man can be found lurking in any corner of the organization. Often he makes no attempt to conceal himself but openly flaunts his figures. But far

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more dangerous is the bootlegger who operates in secret. Even the accountant's own division is not safe from bootleggers. It is not uncommon to find bootleggers firmly entrenched in any of the various sections of the accounting department, itself. But the bootlegger is most often found where he is far more dangerous to the corporate society, outside the accounting department.

It will be noted below that, while the figure bootlegger may be disgruntled, he may, on the other hand, simply be unaware of what it is possible for accountants to supply. Any number of reasons for the existence of the bootlegger can be suggested, but several stand out above the rest. Some of them point to neglect on the part of the accountant, the principal ones are:

1. The bootlegger feels that the time lag in the accounting reports currently being supplied to him is so great that, when he finally receives them from the accounting department, they are of little value to him as an operating tool. He wants information that he can use to help him run his part of the business, and the sooner he gets this information the more effective job he can do. He recognizes that outdated information is almost as bad as (and in some cases worse than) no information at all.

2. The bootlegger has no confidence in the accuracy and reliability of the data supplied him by the accountant. He may have a point there. Just as bad as untimely data is data that is inaccurate and unreliable. After a department manager has burned his hands a few times on information he cannot trust, he will turn to other sources—he will very likely turn to bootlegging.

3. The bootlegger finds himself unable to interpret the information supplied to him by the accountant. Reports that are not clear, that are difficult to follow, and that are full of the technical terms and peculiarities dear to accountants, but unfortunately little understood by people with no training in accounting, very soon end up in the waste basket. Again, the bootlegger looks elsewhere for the information he needs.

4. The accounting department is not supplying the bootlegger with the information he needs. No man can run his organization at top efficiency without certain statistical data. If he cannot get this data from the authorized source, the accounting department, he will begin to look elsewhere. Because he has to have this information to make his organization operate at its peak, he will find it somewhere.

5. Functional responsibility for the development and disbursement of statistical information has not been established. If the accountant's responsibility has not been clearly defined, the bootlegger may not know where to turn for information. He may not even

be aware of the availability of certain information he needs. He may never even consider the accountant as a source and, if the accountant does not make his services known, bootlegging can easily develop.

The Price Paid for Accepting Bootleg Figures

One reaction to this problem, and unfortunately one too often taken, is to say "So what!" What harm can a few 'back-alley' figures do? Or even granting that bootlegging is not a desirable practice, is it a serious enough problem to warrant concern?" A few moments' serious reflection should be enough to convince anyone that a real problem lies in these unauthorized "facts." Consider again the cases set forth at the beginning of this paper. The reader will surely be able to think of many such examples within his own company. Not much figuring is needed to see that they can be a real millstone around the neck of efficient management. Let us take a look at a few of the more obvious costs.

First of all, bootlegging results in a needless duplication of effort. On one hand, we have the accounting department set up for the purpose of accumulating the data needed to run the business. Presumably a lot of thought and effort has gone into working out a systematic method of developing and processing data. The bootlegger duplicates on a smaller scale (and there are even some cases in which he operates on a larger scale) the work of the accounting department. Here is a costly waste of time and of manpower, and an employment of people where they are not best suited. The accountant is a specialist in the processing and accumulation of data. The operations man is a specialist in the managing of his department. When he devotes time to accounting he is pulling himself away from his specialty, and the company is the ultimate loser.

Even more important than the cost to the company in lost time and duplication of effort is the possible loss that may arise because of reliance on unreliable data. The accountant is in a better position to come up with more meaningful and reliable data than the bootlegger. The accountant is a specialist in the gathering and evaluating of data to demonstrate a particular situation or set of facts. He has learned to be critical and to spot inconsistencies. Because he deals in figures that show the picture for the total company as opposed to just one segment of it, such as the bootlegger's department, he is in a far better position to insure reliability. He has learned to rid himself of the prejudices so frequently observed in various other members of the organization, such as the salesman's chronic optimism and casualness and the production man's chronic pessimism. He is an expert at toning down unwarranted optimism and discounting the tears of the "worry warts" in production. Too often the boot-

legger will see only those "facts" which bear out a preconceived opinion; the accountant has learned to let the facts speak for themselves.

Bootlegging also has an inherent characteristic. It tends to grow. As the bootlegger finds that his new data served his purpose (or at least thinks it does), he will be more inclined to use his new sources again. Further, as he continues to do this, he will feel that he has less and less need for the services offered him by accounting. He will not only rely less on accounting than ever before, but he will become less cooperative when the accountant comes to him for information. The obvious result of this is that the accountant will be in a far worse position than he was at the start to offer information that will help to eliminate bootlegging.

Bootlegging can and often does lead to management frustration. Recall for a moment the case, cited at the beginning of this paper, in which management received two entirely different reports on the advisability of building a new plant. Admittedly, a diversity of opinion is desirable, but when management is continually confronted with conflicting reports, presumably coming from the basic data, the result can be extremely frustrating.

Bootlegging also often leads to management's making decisions without realizing the source of figures. Reports often find their way into top management conferences which presumably contain figures based on detailed cost studies prepared by the cost accounting department in which management has learned to have great confidence. These reports may, in fact, be based upon the bootlegger's figures. This hazard can be greatly reduced by a management directive that all figures come from the cost accounting department. But, unless management is aware of the source of the figures, unless the bootlegger's activities are uncovered, there will never be any reason for suspicion and such a directive will never be issued.

Good ideas may never reach top management because of the bootlegger's activities. Consider the man in research who comes up with an idea for a product change or the sales manager who dreams up a new product. As is often the case, he will call the production department to find out if it is practical to make the new product and the cost involved. A conscientious production man will refer the question to the cost accounting department for an answer. However, if he is a bootlegger (for any or all of the reasons heretofore cited), he will offer a cost derived from his own sources. This cost will very likely be prejudiced by his own desires as related to production. Thus, if the stated costs are prohibitive, a good idea may be killed on the spot and never given a serious evaluation.

Bootlegging can also lead to the corruption of the attitude of the accounting

department, itself. Continually confronted by figures coming from the bootlegger, which tend to contradict his own figures, the accountant may soon develop a defensive attitude. He may lose his objective and seek to disprove the bootlegger's figures, whether they be right or wrong, rather than to evaluate the situation on its own merits.

But by far the worst danger of bootlegging lies in the use of off-the-cuff figures in making management decisions. A business can be efficiently run only by making decisions on the basis of all the facts. This is true whether it is a case of the president deciding on a vast new course of action or radical change in policy or whether it is a department manager deciding to drop one or two men from his production force. These decisions can be only as good as the information on which they are based. If the data is faulty, very probably the decision will not be the best. Someone once said, "Give me complete and accurate information on which to base my decision and I won't have to make it." Reliable data in a usable form will speak for itself. Translate these poor decisions, based on the bootlegger's figures, into dollars and cents and the cost can be staggering.

Who Can Eliminate the Bootlegger—And How

Should the bootlegger come to the attention of top management and should he generate enough concern, his actions may be considerably curtailed by executive order. But the price of this curtailment will be reduced efficiency, lower morale, and general ill-will. Probably no person in the organization is in a better position to stamp out the bootlegger than the person who let him prosper in the first place—the accountant. Edicts from top management will help, but only one thing will really eliminate him. That one thing is accounting information furnished by the accounting department which fulfills the needs of the people who turn to bootlegging.

Weeding the bootleggers out of an organization will not be an easy job. It will mean a real effort on the part of the accountant. Probably he will never be able to eliminate the bootlegger completely. However, 90 per cent success will be a great help to the company, or even 75 per cent. There are a number of things the accountant can do, a number of areas in which he can concentrate his efforts in an attempt to bring about an end to the bootlegger. Some are indicated below:

1. *Reduce the time required to get operating information into the hands of the people who use it.* This has long been one of the major problems of the accountant, and there is no simple solu-

tion. But, by being constantly conscious of the problem and continually seeking ways to reduce time lags, many shortcuts can be uncovered. One possible way to reduce the amount of time needed to get the information to the potential bootlegger is to eliminate needless detail from reports. Insistence in working out figures to the dollar or even to the penny often means needless hours spent in the preparation. How much more does it help a man to tell him that his variance was $9,000.09 than it does to tell him that he had a variance of $9,000? Again, the insistence that reports include every possible type of expense or sales data on every single product, as opposed to general classifications, can very well mean needless effort and late reports.

2. *Work more closely with operating people.* To often the accountant has a tendency to contemptuously discount the help that operating people can give him in the preparation of information. Without the cooperation of the operating departments from which his data must ultimately come, the accountant cannot expect to do an efficient job. The accountant, always pressed for time, feels that he cannot afford to take an hour or two to talk over the situation with operating people. But this is just what he must do, and he will be well rewarded for his efforts. Cooperation can only come through understanding—in this case, understanding by the accountant of the production man's problems and understanding by the production man of the accountant's problems. One of the surest ways to obtain the cooperation of an operation man is to get him to participate in the development of the accounting system. Standards, for example, should only be set in conjunction with the man who will have to perform against them; and, if he has a chance to help work out the production costs of an item, he will be far less likely to stand up and dispute them later.

3. *Develop more meaningful reports and better forms of presentation.* Too often the accountant gives the production man a report that tells him what the accountant thinks he should know. Worse yet, these reports are usually loaded with technical terms and cannot be understood outside of the accounting department. Just as the accountant should be constantly looking for ways to reduce the time lag of his reports, he should be constantly looking for ways to make them more meaningful. In addition to the usual review each report should receive when it is issued, each should periodically be analyzed to determine its effectiveness. Does it tell what it is supposed to tell? Does it give this information in the best possible form? If it does not, it should be revised. Another thing that can be done along these lines is to review the report with its users. If the accountant understands the use to which information will be put, he can make use of his training in the field

of data handling and reporting to come up with improvements. Also, the user is in an excellent position to offer good suggestions.

4. *Constant effort should be made to keep clerical errors at an absolute minimum.* Nothing can kill respect for a report quicker than errors in arithmetic, in coding, and in classification. If one mistake is found in a report, the whole report is likely to be discounted as unreliable.

5. *Accounting as a service should be "sold" to the rest of the organization.* Very few members of an organization really have a complete understanding of the scope and number of uses to which accounting information may be put. It is the job of the accountant to see to it that others know what he can do. He has a wealth of information gathered in one form or another. This information should be put to use, but it never will be unless its value can be appreciated.

More Useful Accounting, Less Bootlegging

Figure bootlegging is a common practice in modern business and one which costs a company an immeasurable amount of money each year. One bad decision made on the basis of bootlegger information might even wipe out a company. The job of reducing the activity of bootleggers lies squarely on the shoulders of the accountant. Once other members of the organization begin to feel that they can rely on the accountant and his reports, once they see that his services can be of real value to them in running their operations, and once they feel that they are getting the information they need, they will begin to give up keeping their own records and put record-keeping back where it belongs—in the accounting department. There is no easy way to accomplish this. But, when line men begin to feel that the accountant is there to help them, not merely to draw up a report card that affects the size of paychecks and frequency of promotions, the bootlegger is on the way out. This is the end toward which the accountant must constantly be striving.

Fixed Asset Identification—A Must

by WAYNE W. THOMAS*

TWO INCIDENTS IN OUR COMPANY vividly illustrated the correctness of a statement culled from a *Bulletin* article of several years ago that, "Property records anything but current are obsolete and are of little value to management." (Shoreland C. Matthias, "Property Records Have Heightened Relevance Today" *N.A.A. Bulletin* January 1956). In these cases, proper verification had not been made of the completeness of fixed asset records. When an expensive electric motor was reported stolen, it was found that no record had been made of the serial number. This company carries no insurance on its producing field equipment (in effect relying on "self-insurance") and the chances of recovering this item by law enforcement agencies were nil as a result of the company's being unable to furnish the serial number. In another instance, a tank installation was struck by lightning and was destroyed by fire before the equipment charged to the installation had been verified with the accounting records. As a result, some doubt existed as to the exact financial loss. In companies in which insurance would have been involved in either of these cases, the failure promptly to identify and verify the fixed assets at the time of acquisition might have resulted in disallowed claims.

This suggests implementation of a sane plan for asset identification. In the area of office furniture and fixtures, extreme difficulty is always experienced in correctly identifying individual items of a similar type such as chairs, desks, and filing cabinets, as long as two years after acquisition. In our case, this implementation included tagging and marking all general assets that had been capitalized. Since producing property assets once installed are for the most part permanent, a physical inventory, including identification by manufacturer's serial number, model, make or description, suffices to verify the general office accounting records.

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BUDGETED AND STANDARD COSTS—DIFFERENT AND ALIKE

by G. A. Anderson*

BUDGETS AND STANDARDS are not the same thing. They have different purposes and are set up and used in different ways, yet a specific relationship exists between them. We shall discuss here some of these differences and similarities and attempt to point out some of the ways in which standard costs can be utilized to shape up and reinforce budgets for operations.

The first distinction between standards and budgets is one of purpose. Budgets are statements of expected cost. At the beginning of a given period they are used to forecast requirements of finance, manpower, and other variables related to production and sales. Later on in a given period, they are used as a comparison to be sure that actual costs are not exceeding expectations. Standard costs, on the other hand, do not necessarily show what costs may be expected to be but, rather, what they might be if certain highly desirable performances are attained. For this reason they cannot be used alone for forecasting.

The second distinction is one of emphasis. A budget emphasizes cost levels that should not be exceeded. If they are exceeded, then the whole foundation upon which profits are predicted is jeopardized. But a standard emphasizes the levels to which costs should be reduced. If these levels are reached, profits are increased. Costs are not to exceed budget; they are to approach standard.

A third distinction is one of completeness. Budgets are customarily set for all departments in the company, from sales to manufacturing. Not so for standards. They are set only for the manufacturing divisions. Budgets customarily include both income and expenses, whereas standards are more frequently set for expenses or costs only.

A fourth difference is one of analysis and breakdown. If costs are within the budget, well and good. There is no danger signal; it is not necessary to investigate the reason for the savings. But, when actual costs differ in any marked degree from standards, the nature and cause of the variance should be thoroughly investigated so that steps may be taken to reduce its amount. Knowing why cost differs from budget, if it is less, merely tells us of good performances already attained—if it is more, it tells us of a highly perilous situation.

These differences may be summarized by saying that a budget is a marker for keeping out of trouble, whereas a standard is a compass that

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points the way to improvements. And, although standards and budgets have certain differences, they possess similarities also. These resemblances, in fact, are of such a nature that the existence of standard costs greatly facilitates budget preparation.

The first similarity is that both budgets and standards attempt to predetermine expenses. The budget and the standard have been set by records of past operational methods or procedures and have not been just set by hopes of the so-called "good production."

Secondly, both consider departmental expenses according to accounts. Generally speaking, all departments have their sub-accounts. They have been budgeted a certain amount to be spent for specific uses and have their standards for these specific uses. If there are cost differences they should be investigated at the time they are happening.

The third similarity is that both assume costs are controllable along direct lines of supervision and responsibility. Here the supervisors are responsible to management not only for production but also for cost of production. The supervisor should be aware of the budget as well as the standards for his department.

Lastly, they both require the issuance of periodic comparative cost reports When the costs are much higher or lower than the budgeted amount and are controlled by standards, these differences should be broken down so management can see specific reasons for these differences. This should be done at the time of each interim reporting period.

In conclusion, we would say that budgets differ from standards chiefly in that they establish maximum permissible costs, whereas standards establish desirable minimum costs. They are similar to standard costs in their methods of approach and measurement. If standard costs are known, budgeted costs can be derived from them by the application of ratios.

Beyond These Covers

Books

A Study in Liquidity

William A. Paton Jr., Bureau of Business Research, University of Michigan, Ann Arbor, Mich., 1958, 176 pp.

An "investigation of the impact of inflation on corporate monetary items," this study takes off from the "fundamental tasks of the accountants." It recognizes "aggregate monetary fund patterns" and "individual company patterns" of the effects dealt with.

Sale-Leasebacks and Leasing

Harvey Greenfield and Frank G. Griesinger, McGraw Hill Book Co., Inc., 330 West 42nd St., New York 36, N. Y., 1958, 107 pp., $15.

"In real estate and equipment transactions" is the sub-title of this explanatory work, the co-authors of which are an attorney and a company treasurer, respectively. The book is arranged in three parts, one introductory, the second relating to real estate and the third to equipment.

Montgomery's Federal Taxes

Burdet, Mahon, McCullough and Richardson, Editors, Ronald Press, 15 East 26th St., New York 10, N. Y., 1958, $25.

This is a 37th edition of what is probably the oldest continuously revised tax textbook (and reference book) extant. Not a small volume, it is equipped with a "how-to-use" preface occupying a single page and explaining the arrangements and scheme of references utilized.

Operations Auditing

Institute of Internal Auditors, 120 Wall St., New York 5, N. Y. Paper Bound, 1958, 79 pp.

Putting in print the addresses delivered at last May's Seventeenth Annual Conference of the Institute of Internal Auditors, these published proceedings also include the Institute's annual Thurston Award paper, "Auditing the General Accounting Activity" by Edwards B. Murray, reflecting practice at General Electric Company. Among the titles of the conference addresses are "Management Services: The Roles of the Internal Auditor and the C.P.A.," "Effective Management Communications" and "Basic Education for Business and Life."

Tax Avoidance vs Tax Evasion

Sydney A. Gutkin and David Beck, The Ronald Press, 15 East 26th St., New York 10, N. Y., 220 pp., $10.

Repairs vs Capital Expenditures

James C. Wriggins and George Byron Gordon, The Ronald Press, 15 East 26th St., New York 10, N. Y., 1958, 144 pp., $10.

Assignment of Income

Don J. Summa, The Ronald Press, 15 East 26th St., New York 10, N. Y., 1958, 131 pp., $10.

All three of these volumes are additions to their publisher's Tax Practitioner's Library. They are devoted to definitions, case citations and clarification of moot points, so far as the current situation makes it possible to be definitive.

Elementary Mathematical Programming

Robert W. Metzinger, John Wiley & Sons, 440 Fourth Ave., New York 16, N. Y., 1958, 246 pp., $5.95.

A current and complex topic in management and accounting practice is here presented. Intended as a volume which individuals not highly trained in mathematics will find it possible to read, this work is definitely mathematical, as it must be, but proceeds at a pace suited to the less initiated if they are willing to concentrate upon it.

Studies in the Mathematical Theory Of Inventory and Production

Arrow, Karlin, and Scarf, Stanford University Press, Stanford California, 1958, 340 pp., $8.75.

The inventory problem will be recognized by accountants in the terms in which these authors state it. To go further, a help is provided in the form of Chapter 3 which consists of summaries of the remaining chapters of the book. The studies as a whole are intensely mathematical in the character of their approach.

New Techniques for Management Decision Making

Franklyn A. Lindsay, McGraw Hill Book Co., 330 West 42nd St., New York 36, N. Y. 1958, 173 pp. (typewriter lettering), $15.

Designated by its publisher as a "consultant report" on a current business problem, this work deals with techniques of mathematical analysis in solving problems in which uncertainty of conditions or complexity of circumstances are marked characteristics. A section relates these techniques to financial, production and marketing problems.

Instructional Material for Teaching Profit Sharing

J. J. Jehring, Compiler, Profit Sharing Research Foundation, 1718 Sherman Ave., Evanston, Illinois. Paper Bound, 1959, 58 pp., $2.

Separately authored sections of this manual include papers on "Relationship of Economic Profit to Profit Sharing," "The Changing Nature of Wages," and "Changes in Union Attitudes Toward Profit Sharing." There is a list of topics for students papers, a list of readings and some information on profit sharing in other countries.

Credit Manual of Commercial Laws, 1959

National Association of Credit Men, 229 Fourth Ave., New York 3, N. Y. 708 pp. $12.

The aim of this edition, as of earlier ones, is designated as to provide "an accurate and condensed reference volume as a working tool for credit and financial managers." Coverage relates to the conventional subdivisions of commercial law, e.g. contracts, negotiable instruments and bankruptcy. An initial chapter deals with "1958 Federal and State Legislation."

Articles

Graphic Analysis for More Effective Management Control

Thomas S. Dudick, The Controller, November, 1958.

Fairly well filled with graphs (seven) and related tables, this article also has ample text to explain them. Depicted graphically are such topics as "Order Intake Versus Shipments and Backlog," "Comparison of Sales and Inventories" and "Comparison of Seasonal Pattern of Sales With Pattern of Production Based on Number of Workdays."

Top Management Views Budgeting and Planning

T. F. Bradshaw. Business Budgeting, November, 1958.

Representing that "the budgeting process (has) been integrated into the management process" at his company (Atlantic Refining Co.), the writer of this article portrays goal setting, achievement planning, course-changing, and related internal conditioning as reflected in this organization's experience.

Techniques for Projecting Alternatives

William L. Raby, The Controller, November, 1958.

Use of mathematical forecasting and "accumulative projections" to envision what will happen under differing courses of action is advocated and explained in this article, with special attention to accumulative projection, account by account and in summary. These techniques are represented as

means by which accountants can help management to "pierce the fog that shrouds the future."

Management's Responsibility in Electronics Data Processing Program

Herman C. Heiser, Journal of Machine Accounting, December, 1958.

Essayed here are a classification of electronic data processing applications and exposition of the task of unifying such applications, all as an aspect of advances in scientific management—and accounting.

Procurement Auditing

Ralph C. Moffitt, Internal Auditor, December, 1958.

The author of this article, who is Vice-President-Purchases of the United States Steel Corporation, discusses "the function of purchasing in terms of its recognition by management, standards of evaluation as related to the field of purchasing and proper relationship between purchasing and internal auditing."

Cost Justification: Rules of the Game

Herbert F. Taggart, Journal of Accountancy, December, 1958.

The intricacies of price variation justification on the basis of cost variations are explored here, as related to defenses before the Federal Trade Commission under the Robinson-Patman Act. The history of the act is touched on and eight areas of fairly well-settled principle in respect of these defenses are identified. The article, which is extended in length and comprehensive in approach, is derived from the author's current book on this topic.

Management Planning and Control

Conference Papers, Canadian Chartered Accountant, December, 1958.

The papers here reproduced from the 1958 conference of the Canadian Institute of Chartered Accountants are: "Long-range Planning" by J. A. Des Rochers, "Money Management" by Trevor Moore, "Control and the Long Term Plan" by R. D. Armstrong and "Essential Elements of Control" by Roland Chagnon. All are comprehensive and perceptive in character.

How to Evaluate New Capital Investments

John G. McLean, Harvard Business Review, November-December, 1958.

Subtitled, "Don't Count your cash before it is discounted," this article opens three questions and contains descriptions of "some of the answers developed by Continental Oil Company." The questions ask why return on investment figures are preferable to pay-out figures, what discount cash-flow procedures is likely to yield the best results and what "techniques and assumptions" will prove most helpful in making "practical use" of the method.

ADDRESSES OF PERIODICALS

Business Budgeting
528 W. 12 St., Covington, Ky.

Canadian Chartered Accountant
69 Bloor St. E., Toronto 5, Ont., Canada. Single copy: 60¢.

The Controller
2 Park Ave., New York 16, N. Y. Single copy: 60¢.

Harvard Business Review
Soldiers Field, Boston 63, Mass. Single copy: $2.

Internal Auditor
120 Wall St., New York 5, N. Y. Single copy: $1.

Journal of Accountancy
270 Madison Ave., New York 16, N. Y. Single copy: 85¢.

Journal of Machine Accounting
208 S. Main St., Paris, Ill.

From The Inside

Page 19: *"It has been suggested that index numbers, such as the construction cost index of the U. S. Department of Commerce, be used to adjust the amount of depreciation charges to replacement values. Index numbers produced by a government agency seem to hold out the hope of a uniform method of adjustment of depreciation which would provide reasonable equity to most businesses."*

Page 28: *"The commission has compiled a list of service lives and depreciation rates for each type of property item. This list is used by all components of the atomic energy program; therefore, a machine used in Oak Ridge, Tennessee, is depreciated at the same rate as a similar machine used in Hanford, Washington."*

Page 43: *"One area of accounting in which little practical work has been done and which may well be the most overlooked field in accounting today is 'accounting for inflation.' Within this area, the accountant will find that serious study can help his management."*

Page 55: *"It has been shown that, in some cases, economically sound decisions depend on two separate sets of transfer prices, marginal cost for the buying division and final selling price, less cost to complete and fair return to subsequent divisions, for the selling division."*

Page 69: *"In the preparation of the closing schedule, it was necessary to schedule the tabulating department and the remaining office functions in detail. Deadlines were established in terms of work days and specific times."*

Page 74: *"Management must know the relationship of profit on a given product to the investment required to make that profit and the accountant should be in a position to provide this information."*

Pag 87: *"But by far the worst danger of bootlegging lies in the use of off-the-cuff figures in making management decisions. A business can be efficiently run only by making decisions on the basis of all the facts. This is true whether it is a case of the president deciding on a vast new course of action or radical change in policy or whether it is a department manager deciding to drop one or two men from his production force."*